DOCUMENT RESUME

ED 122 959 PS 008 610

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TITLE Achievement Motivation and the Child's Social Environment.
INSTITUTION Michigan Univ., Ann Arbor. Inst. for Social Research.
SPONS AGENCY National Inst. of Child Health and Human Development (NIH), Bethesda, Md.
PUB DATE [75]
GRANT PHS-G-HD-04038-04
NOTE 73p.

EDRS PRICE MF-$0.83 HC-$3.50 Plus Postage
DESCRIPTORS *Academic Achievement; Age Differences; *Child Development; *Elementary Education; Longitudinal Studies; *Motivation; Observation; Racial Factors; *Role Conflict; Sex Differences; Social Factors
IDENTIFIERS *Social Comparison

ABSTRACT

This research was aimed at identifying some developmental and social-psychological conditions important to the relationship between achievement motivation and scholastic performance. A total of 197 second and fifth grade pupils in two elementary schools were observed near the end of first grade and fourth grade, and then again near the beginning and end of second grade and fifth grade. The data indicate that there is a developmental broadening of the basis of achievement motivation. Behavioral and projective measures of achievement motivation show increasing use over time of social comparison standards along with continuing use of autonomous standards based on comparison with one's own previous performance. The data demonstrate that only autonomous achievement motivation is reliably related to the scholastic performance of second graders, while both autonomous and social comparison-based motivation are positively correlated with the performance of fifth graders. There are some indications in the data that girls rely more heavily than boys on comparisons with their own performance and that while pupils rely more heavily on social comparison than their black classmates do. Role conflict (resulting from a perceived conflict between teacher standards and peer standards for pupil behavior) appeared to interfere with the expression of fifth graders' social comparison achievement motivation in their scholastic performance. (Author/JMB)

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PS 008610

Achievement Motivation and the Child's Social Environment

Report to

The National Institute for Child Health and Human Development

by

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Abstract

The aim of this research was to identify some developmental and social psychological conditions important to the relationship between achievement motivation and scholastic performance.

Subjects were 197 second and fifth grade pupils in two elementary schools in working class neighborhoods in the suburban fringe of the metropolitan Detroit area. They were first observed near the end of the first grade and fourth grade, then again near the beginning and the end of the second grade and fifth grade.

The data indicate that there is a developmental broadening of the basis of achievement motivation. Behavioral and projective measures of achievement motivation show increasing use over time of social comparison standards along with continuing use of autonomous standards based on comparison with one's own previous performance. There are some indications in the data that girls rely more heavily than boys on comparisons with their own performance. White pupils rely more heavily on social comparison than their black classmates do.

Consistent with the finding of the developmental shift in the basis for achievement motivation, the data demonstrate that only autonomously based achievement motivation is reliably related to the scholastic performance of second graders while both autonomously and social comparison based motivation are positively correlated with the performance of fifth graders. Projective measures of motivation generated these findings but behavioral measures did not.

The experience of role conflict interfered with the expression of fifth graders' social comparison achievement motivation in their scholastic performance. When fifth graders perceived that their teacher and their friends among their classmates agreed on the proper behavior for pupils, social comparison achievement motivation was more closely related to their performance than when they perceived disagreement; and the relationship of socially-based achievement motivation to performance was closer among the popular than the unpopular pupils. On the other hand, role conflict seemed to be an inconsistent moderator of the relationship of autonomous need achievement to performance among second and fifth graders.

Further work is underway that will examine the effect of racial and sex role conceptions, self-esteem, and achievement anxieties on the relationship of achievement motivation to scholastic performance.

Acknowledgements

We wish to thank the personnel, students, and parents of the Romulus and Inkster, Michigan school systems for their cooperation in giving us time and space for this research. We also want to recognize the able assistance of the several people who participated in the collection and analysis of the data: Verorica Blaschak, Angela Current, Norman Jones, Kathleen Lamb, Grace Mack, Roy Partridge, William Schaefer, Sandra Sims, Judy Weinert, Peter Weston, Maren Wilhelmy, Marilyn Williams, and Artee Young. The typing of various working papers and drafts of this report was done by Mary Cullen, Anne Jenne, and Bonnie Wilde, whose patience and competence we gratefully acknowledge.

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Table 6. Relationships (gamma) of cross-wave measures of autonomous and social comparison achievement motivation to report card grades of academic achievement tests at three levels of popularity. 55

Overview

The impetus for this study was that there seemed to be no simple relationship between the motivation to achieve or to avoid failure and pupils' scholastic performance. Although it seems that the energy and persistence which characterize pupils who have strong motivation to achieve would lead to better school grades, research has not reliably demonstrated any such effect.

Findings have been mixed, with some studies supporting the influence of these motivational characteristics (for example, Cox, 1962; Ricciuti & Sadacca, 1955 for achievement motivation, and Bloom, 1963; Hill & Sarason, 1966; Stanford, Dember, & Stanford, 1963 for achievement anxiety) and other studies finding no effects (for example, Feld, 1960; Shaw, 1961 for achievement motivation, and Walter, Denzler, & Sarason, 1964 for achievement anxiety). This is not surprising; none of the theoretical systems concerned with the prediction of achievement behaviors from motivational characteristics assume that these are the only influences upon achievement behaviors. Yet there had been no attempts simultaneously to assess motivational and other characteristics of the individual along with characteristics of the relevant social environment that also would be assume to effect academic performance in children.

The aim of this research was to place the study of the determinants of achievement behaviors in broader developmental and social-psychological contexts. This concomitantly shifted the study of the determinants of scholastic performance from a univariate to a multivariate approach.

We have assumed that the achieving behaviors of a person are influenced by the interaction of his individual characteristics, including his motives, values, defenses, and cognitive skills, and the social environment in which he functions. The social environment may be influential in two ways: (1) it has helped to shape the relatively enduring personal characteristics that the individual brings to the scholastic task; and (2) it influences the course of striving behavior as the individual adapts his behavior to the demands of the school and to the other individuals in the class. The major organizing concept we have used to identify critical aspects of the social environment is that of social role, those rights, privileges, and obligations attendent upon a

child's relationship with specific others. Our interest has been restricted to four typical roles of children: student role, sex role, racial role, and as peer-friend. Since achievement behaviors in the student role were the focus of attention, we investigated the other roles only in those relatively circumscribed ways in which they directly impinged upon the student role.

The study design included variations in a number of conditions that may have effects upon motivation to achieve, anxiety about achievement (e.g., test anxiety), and scholastic performance. We studied children in eight classrooms, following them for a year and a quarter. Four were second grades and four were fifth grades; two classes at each grade level were racially mixed and the others essentially black in racial composition. These particular grades were chosen because there was evidence to suggest that important shifts in achievement motivation occur at these two grade levels. They also represent periods of consolidation of the distinctive learning tasks of the primary and upper elementary grades. Racially segregated and mixed groups were chosen because we were interested in examining the contrasts, if any, in the achievement motives of black and white children and in the relationship of motivation and scholastic performance for black children in racially segregated and integrated classrooms.

The variables measured included the pupils' achievement motivation; achievement anxieties; self-esteem; social desirability of responses; scholastic performance; position and perceived position in the sociometric structure of the class; perceptions of the criteria of teachers, a good friend, and one's mother for a good student; and perceptions of characteristics of black and white children and of boys and girls as students.

General Method

Here we present those features of the research methods that are relevant to all the work. Details of measures and procedures specific to certain findings will be presented when those findings are discussed.

Subjects

Subjects were from two elementary schools in southeastern Michigan located in working class segments of small industrial communities with-

in 10 miles of each other. The School 1 sample was 67 percent white, whereas the School 2 sample was 85 percent black at the first testing period.

Two grade 1 and two grade 4 classes were tested at each school in the spring of 1970 (time 1). Then these same children who were in any second or fifth grade class at these schools the following fall (time 2) or spring (time 3) were retested. All new second and fifth graders who were in the studied classrooms at time 2 or time 3 were also tested. Less than 6 percent of the eligible children were not tested because their parents denied permission for them to participate in the research.

A total of 197 children were tested at time 1 (100 first graders and 97 fourth graders, 108 males and 89 females, 119 blacks, 74 whites, and 4 from other racial groups); 194 at time 2, of whom 154 were in the time 1 sample (102 second graders and 92 fifth graders, 110 males and 84 females, 125 blacks and 69 whites); and 193 at time 3, of whom 147 were in the time 1 and time 2 samples (97 second graders and 96 fifth graders, 103 males and 90 females, 125 blacks and 68 whites).

The average age as of time 1 was 84 months for the younger and 122 for the older group. At the end of the first grade, mean grade equivalents on the California Achievement Test, Form W were 2.10 on the Vocabulary subtest and 1.97 on the Arithmetic Reasoning subtest for the lower graders. The upper grade sample was somewhat below national norms on the Iowa Test of Basic Skills, Form 3, with average grade equivalents of 3.83 for the Vocabulary and 3.60 for the Arithmetic Concepts subtests at the end of grade 4.

Procedure

At each time period, all children first participated in a group testing session in their classrooms during which we measured their achievement anxiety, their tendency to bias their responses in the direction of social desirability, and their self-esteem.

At each time of measurement children were also seen in one or more individual testing sessions. An experimenter took each child to a special testing room and introduced the study as being about what children do in school and how children feel about different things that happen in school.

At time 1, 6 testers were used (1 black female, 2 white females, 1 black male, and 2 white males). At time 2, 7 were used, including 5 from time 1 (1 black female, 2 white females, 2 black males, and 2 white males). At time 3, 10 were used, including all 7 from time 2 (2 black females, 2 white females, 3 black males, and 3 white males).

Each tester saw approximately equal numbers of children in each sex-by-race group at each grade level and school. The order of testing was left up to the teachers.

At time 1 and time 2 each child was seen in one individual session, which proceeded in the same fashion: storytelling to four verbal leads; one social comparison task; and three autonomous tasks. At time 3, two individual testing sessions were required because of the inclusion of other measures relating to perceptions of classroom roles. The first session began by asking the children how they thought their teachers would feel about various behaviors in school--i.e., the children's perceptions of the role of student as their teachers would describe it; then the measure of autonomous achievement motivation was taken; then a sociometric test; and finally, for fifth graders only, a measure of their perceptions of the role of student as their mothers would present it. The second session began with the storytelling measure of achievement motivation; that was followed by the behavioral measure of achievement motivation based on social comparison; then we elicited children's beliefs about how different sexes and races acted in the student role; and concluded with a measure of their perceptions of what a good friend would think of various behaviors in school.

Developmental Changes in the Bases of Achievement Motivation

Introduction

Achievement motivation is conceived of as the overall tendency to evaluate one's own performance against standards of excellence, to strive for successful performance, and to experience pleasure contingent on successful performance. Veroff (1969) has presented a stage-developmental theory of achievement motivation based on assumptions about the developing capacities of the human infant and child and typical social demands at different ages. He proposed three major stages in the

development of achievement motivation--autonomous, social, and integrated. The relevant basis for defining standards of excellence is the critical characteristic at each stage. At the stage of autonomous achievement motivation, the standards of excellence used to evaluate performance are personal, based on self-comparisons of current with past performance. At the second stage, social or self-other comparison is the predominant basis for standards of excellence. Autonomous and social standards of excellence are integrated at the final stage of the development of achievement motivation in the sense that both are available for use in appropriate situations.

The aspects of Veroff's theory of most concern in this section are his proposals that the autonomous achievement orientation is clearly manifest by the beginning of elementary school while the social-comparison orientation is only in its beginning phase at this time; and that social comparison standards increase in importance during the ages 7-12, reaching a peak by the end of elementary school years, while the use of autonomous standards drops off somewhat during this period. The stage of integration of autonomous and social achievement motivation is proposed to begin during adolescence. The present study covers the time period of the first and second stages.

The prediction that younger children (ages 2-8) will be lower in social comparison achievement motivation than older children (ages 9-12) is clear and crucial to Veroff's theory. Whether the increasing salience of social comparison standards of excellence signifies an absolute or only a relative decrease in engagement with autonomous standards of excellence is somewhat ambiguous in the theory. It is clear that a relative decline is implied. This would be manifest in the greater likelihood of a 10 than a 6 year old child using social comparison standards of excellence in a situation where either self or social comparison was possible. The fantasy-based measures of achievement motivation used in the present study presented such an opportunity. It is not clear, however, what Veroff's model implies for a situation where no social standards of excellence are available, or for a situation that an external agent structures in terms of autonomous standards. Whether the older child would be less likely than the younger child to be motivated by autonomous standards in such constrained situations is not apparent. The

behavioral tasks used here to assess achievement motivation were typical of such constrained situations. Some permitted the children to apply autonomous standards of excellence; others had information only about social standards of excellence. Therefore no predictions were made about age differences in autonomously-based achievement motivation on these measures.

The following hypotheses were tested.

1) Social comparison achievement motivation will be stronger among the upper than among the lower grade pupils on both behavioral and fantasy measures.

2) Autonomous achievement motivation will be stronger among the lower graders than among the upper graders on the fantasy measures of autonomous achievement motivation.

In addition to hypotheses on cross-sectional age differences, Veroff's theory implies cohort changes over time. Since repeated measurements were obtained that covered a year long period during which time developmental shifts could occur, it was possible to test the following hypotheses as well.

3) Social comparison achievement motivation will show an increase over time for the cohorts of younger and older children on both behavioral and fantasy measures.

4) Autonomous achievement motivation will show a decline over time for the cohorts of younger and older children on the fantasy measures of autonomous achievement motivation.

Instruments

Fantasy measures of achievement motivation. Verbal cues were used to elicit fantasy to enhance the establishment of rapport and to leave the race and sex of the story characters ambiguous. The story leads were balanced for age; characters in two stories were described as children and age was ambiguous in the other two story leads that referred to a person. The cues were modifications of those used previously (Mingione, 1965; O'Connor, Atkinson, & Horner, 1966; Smith, 1969; Winterbottom, 1958).

Time 1 cues were: a child who is in school; a person who is working on something at home; some children who are playing a game, one is a

little ahead; a person who is sitting at a desk thinking about something.

Time 2 cues were: a child who is sitting at a desk in a school room; a person who has some work to do; a child who is in a race with some other children; a person who is thinking about something to do.

Time 3 cues were: a child who is in school (same as Time 1); a person who is working on something at home (same as Time 1); a child who is a little ahead in a game with some other children; a person who is sitting at a desk thinking about something (same as Time 1).

The instructions read to the child were identical at each test session, except for the specification of the verbal cue for a practice story that always preceded the four test stories. They were designed to provide what Atkinson (1958, Ch. 42) has defined as a "neutral" arousal situation, that is, one where no attempt is made to manipulate achievement cues.

The tester elicited stories from the child by reading the verbal lead, "Tell me a story about . . ." and asking the child to respond to a standard series of four sets of questions: (1) How does the story begin? What is the person (child) doing (thinking)? (2) What is the person (child) thinking about? [How does the person (child) feel?] (3) What does the person (child) want? (4) What will happen? How will the story end? Answers were probed for amplification or clarification only if the child said, "I don't know," or a similar total non-response. The tester then said, "Well, just try to make up anything you want. Remember there are no right or wrong answers," and then repeated the question. The occasional child who told extremely long stories was reminded before giving the next story lead that "You don't have to tell me a long story, just answer my questions."

The tester wrote down the child's response, which was also being tape-recorded. The written record was later corrected and amplified as necessary by an independent coder who listened to the tape recording. The corrected written record was used in the content analysis.

The content analysis was based on the standard scoring system for need achievement (see Atkinson, 1958, Ch. 12), but because of our theoretical interest in Veroff's distinction between autonomous and social comparison standards of excellence, the standard criteria for scoring achievement imagery were divided into those primarily based on autonomous

or social standards of excellence.

Standards of excellence coded as explicitly socially defined were: (1) competitive activity is engaged in where winning or doing as well or better than others is stated as the primary concern, e.g., "he wants to win;" or (2) competitive activity is engaged in and desire to win is inferred from affective concern over goal attainment or from certain kinds of instrumental activity, e.g., "he won and was happy," "he is working hard so he can win;" (3) positive social evaluation with respect to a standard of excellence is explicitly stated as a desire, e.g., "he wants a good grade;" or (4) a desire for positive social evaluation with respect to a standard of excellence is inferred from affective concern over goal attainment that requires social evaluation or from certain kinds of instrumental activity in tasks whose outcomes require social evaluation, e.g., "he is sad because he got a bad grade," "he is trying to get a good grade."

Standards of excellence coded as primarily autonomously defined were: (1) a self-imposed standard of excellence is explicitly stated as the primary concern, e.g., "he wants to figure out the right answer;" (2) a self-imposed standard of excellence is inferred from affective concern over goal attainment or from certain kinds of instrumental activity in tasks where no social evaluation is required or implied, e.g., "he figures out the answer and feels happy," "he is trying his best to figure out the answer;" (3) long-term or career involvement is the goal (unless goal is stated as social approval of accomplishment), e.g., "he wants to grow up and get a job;" (4) "long-term involvement is inferred from involvement in a specific task which is definitely shown to be related to a long-term achievement interest, e.g., "he is studying for an exam so he can get into college;" or (5) "unique accomplishment is a goal, e.g., "he worked hard and became a famous football player."

The distinctions made in no way changed the basic criteria presented by Atkinson. The same stories would be scored for achievement imagery using either system. But this sytem takes note of the basis for scoring imagery so that separate scores can be calculated for autonomously-based and socially-based achievement imagery. The same story could receive a positive score for both types of achievement imagery only if two different statements in the story were each adequate to meet the scoring

criteria; less than 5 percent of all stories met the scoring criteria for both autonomous and social comparison achievement imagery.

Coders with previous training in using Atkinson's system were then trained to make note of the autonomous-social comparison distinction on pretest stories. Two coders, who were also testers, scored all the time 1 stories. Two other coders, one of whom was also a tester, coded all time 2 and time 3 stories. Each coder scored all stories told to two story leads at any given time of assessment in a random sequence. All coding was blind as to characteristics of the subject. A third person also scored a random subset of the same stories, and the percentage of agreement between each regular coder and the independent judge on whether or not to score achievement imagery was between 83 percent and 95 percent.

Autonomous and social comparison achievement imagery scores were obtained for each subject at each time by counting the number of stories scored for each type of imagery,[1] yielding scores that could vary from 0 to 4.

Previous research indicates that children's need achievement scores are sometimes significantly positively correlated with the length of stories children tell to interviewers (e.g., Baughman & Dahlstrom, 1968, $\underline{r}$ = .30 - .46 for four age groups of white rural teenagers; Veroff, 1969, $\underline{r}$ = .11 for over 2000 elementary school children). But such relations are not always found (e.g., Baughman & Dahlstrom, 1968, for 3 of 4 age groups of black rural teenagers). The present study continued this mixed pattern. Both achievement imagery scores from time 1 were significantly correlated with story length ($\underline{r}$ = .35 for social and .18 for autonomous, each $\underline{p} < .05$, n = 137). But at the other two times of measurement neither achievement imagery score was significantly correlated with story length. This raised the question of whether the correlations at time 1 were due to those children with stronger motivation to achieve expressing it by telling longer stories, or due to those children who told longer stories,

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[1] Stories were also coded for subcategories according to Atkinson (1958, Ch. 12), and total need achievement scores obtained for each subject at each time. Correlations between these scores and the achievement imagery scores were so high ($\underline{r}$ = .94 to .98) that only the data for the latter scores are reported here.

for whatever reason, giving more numerous opportunities to scorers to find signs of achievement motivation. It was decided that some correction for story length at time 1 was needed when significant positive correlations with story length were also found for indices of both positive and negative self-esteem. The correction procedure was modeled after that of Veroff, Atkinson, Feld, and Gurin (1960). The current procedure involved: (1) grouping total story word counts for each subject into 14 major categories, (2) normalization of all fantasy achievement motivation and fantasy self-esteem scores (see page 58-59 for description), (3) determination of the average correlation of all fantasy scores with the grouped word count variable (r = .29), (4) determination of the average expected value of each fantasy score for each word count interval, (5) the addition or subtraction of a constant from each fantasy score depending on the expected value for given word count interval. For each fantasy-based score, all subjects whose total story length fell within the same word count interval had the same correction factor applied to their normalized fantasy scores. The average correlation between all the corrected fantasy scores and story length was a non-significant value of -.05; the correlation with corrected social achievement imagery was .00 and with corrected autonomous achievement imagery was -.22, $p < .05$. In all analyses involving time 1 achievement imagery motivation scores, results will be reported for both corrected and uncorrected scores. Over-time comparisons among achievement imagery motivation scores will of necessity be based on uncorrected scores at three time periods.

Behavioral measures of achievement motivation. The behavioral measures of autonomous and social comparison achievement motivation were adapted from Veroff (1969), and were based on the assumed inverse relationship between perceived difficulty of a task and the incentive value for success at the task (Atkinson, 1957). The implication from this is that a person with strong approach achievement motivation will maximize probable outcomes by setting a moderate level of aspiration, neither so easy that success has little incentive value nor so difficult that success is highly unlikely. The behavioral measures of autonomous and social comparison achievement motivation use moderate levels of aspiration choices as indicative of achievement motivation.

At each time of measurement the children were presented with three series of tasks to measure autonomous achievement motivation. The tasks and instructions used are described in detail in Veroff (1969, pp. 99-100). Briefly they were:

Time 1. (a) bucket throw: styrofoam cone tossed from eight distances; (b) picture memory: eight sets of pictured objects displayed, then named from memory; (c) snap-it beads: seven designs displayed, then reproduced from memory.

Time 2. (a) bucket throw; (b) picture drawing: copying eight designs; (c) snap-it beads.

Time 3. picture memory; (b) picture drawing; (c) snap-it beads.

Each series of tasks reflects somewhat different skills and was presented in several versions, starting with an easy one and then in versions requiring obvious increases in skills. The tasks and experimental procedures provided immediate and clear feedback to the children about their success or failure at each effort, e.g., the cone thrown toward the bucket either dropped in or not; the snap-it bead design the child produced from memory on comparison either matched the original design or not. The tasks also provided clear cues to the increasing difficulty of the series, e.g., the picture memory series consisted of seven sheets of paper with 2, 3, 5, 7, 9, 11, or 17 objects pictured on each.

The child performed each version in a task series until two consecutive levels were failed. The examiner then simultaneously redisplayed four versions of the task series; the first success, the last success, the first failure, and the second consecutive failure. The four versions were described as "easy for you, not so easy but you got it right, hard for you, and very hard for you," and the child was asked to choose one to try again. The choice of either the last success or first failure was scored as a sign of achievement motivation, yielding scores that could vary from 0 to 3 at each testing.

Social comparison achievement motivation was assessed by the child's choice among three tasks presented simultaneously. The task choices at each time of measurement differed in their external aspect. At time 1, three 9 by 12 inch (22.86 cm by 30.48 cm) manila envelopes were presented at time 2, three 3 inch (7.62 cm) square boxes were used; at time 3, the

child was shown three 7 by 10 inch (17.78 cm by 25.40 cm) manila envelopes. The child could not see the materials enclosed in the envelopes or boxes. The tasks were numbered 1, 2, and 3 and were described respectively as "hard for children of your age," "something some children of your age can do and some can't," and "easy for children of your age." Veroff's instructions were used (Veroff, 1969, p. 101) to elicit a choice by the child. The choice of the middle envelope or box was considered the indication of social comparison achievement motivation. The child then performed the task contained in the chosen envelope or box--crossing out certain numbers on sheets of paper; sorting poker chips by size and/or color; and building with Lego blocks. The tasks in each envelope or box at a given time of measurement were actually identical and were designed to avoid feedback to the child on the adequacy of performance by a stress on speed in the instructions, the use of a stop watch, and the omission of time feedback to the child.

Results

Developmental differences were tested with those pupils who had complete data from all three times of measurement on the relevant measure of achievement motivation. This procedure was required to test hypotheses concerning changes over time within each age group and was also used to provide a comparable data base for the hypothesis concerning differences between the two age groups.

Three-way (2 x 2 x 2) multivariate analyses of variance were used to test overall predicted grade-age effects across all three times of measurement. The measures of a given type of achievement motivation at the three time periods were the multiple dependent variables; and grade in school, sex, and race were the factors. These same data were also subjected to three-way (2 x 2 x 2) univariate analyses of variance to test grade effect at a specific time period. In these analyses the single dependent variable was the measure of a given type of achievement motivation at one time of measurement; and school, sex, and race were the three factors. Sex and race were included in all these grade-related analyses only for control purposes and are therefore reported in this section only when they interact with grade level. Tests of sex and

race main effects and other interaction effects are reported in later sections. All F values were evaluated with $p < .05$ as the significance level.[2]

Hypothesis 1: Social comparison achievement motivation will be stronger in the upper than in the lower grade sample. This hypothesis is supported by data from all three time periods and by both fantasy and behavioral measures of socially-based achievement motivation. Figure 1 demonstrates that the upper grade children--those who went from fourth through fifth grade during the course of this study--consistently produced more social comparison achievement imagery than the first/second graders did. (The results were unchanged when we checked whether length of stories at time 1 could account for the age difference at that time.) Figure 2 demonstrates that older children also significantly more often elected to try tasks they believed were of moderate difficulty for someone of their age. Neither race nor sex significantly qualifies these age effects across the three time (overall grade x sex $F(3,135) = 2.51$, $p < .10$), with one minor exception. At the beginning of the school year, i.e., at time 2, the age effect on moderate social comparison task choices interacts with sex ($F(1,137) = 6.61$, $p < .05$); older girls significantly more often made moderate choices than younger girls, but older and younger boys did not differ significantly at the time period.

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[2] Analyses were performed using the MANOVA 3 computer program (OSIRIS III, 1973), which performs an exact solution with unequal cell frequencies by use of a step-down model in either the univariate or multivariate case (Bock & Haggard, 1968, p. 112). Rao's approximation of the F-ratio for the likelihood ratio criterion is used to test the significance of the overall multivariate effect for all the dependent variables simultaneously. If there are a disproportionate number of cases in the cells formed by the cross-classification of the factors, then somewhat different F values result for main effect and interaction terms depending on the order in which the factor effects are tested. This problem can be handled by controlling the order in which the factors are tested, such that one factor's main effects and interaction effects can be tested with all other effects removed. Although the disproportionality of sub-classes was not severe in the present study, the hypotheses concerning grade in school effects were tested in a model that eliminated the sex and race confounding from the grade effects. Analyses of variance reported in the section on sex differences used a model that eliminated the race and grade confounding from the sex effects, and in the section on racial differences, the model eliminated sex and grade confounding from the race effects.

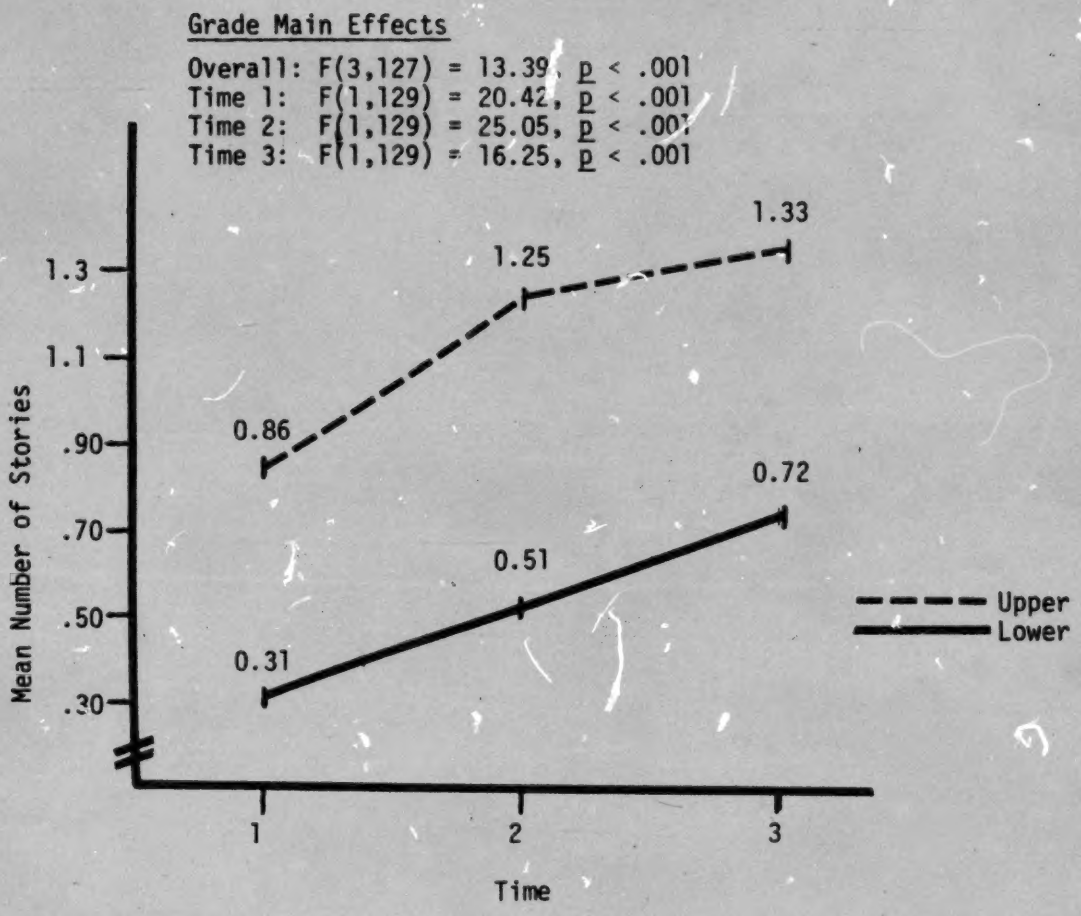

Figure 1. The effect of grade on socially-based achievement imagery at three times.

The total picture on differential task choices by younger and older children is clarified by looking at the children who did not make the choice of moderate difficulty (see Figure 2). Younger children chose the easy tasks consistently more often than the older ones. They also less often chose the hard tasks, except that the difference in hard choices is not significant at the initial time period, i.e., the end of the first and fourth grades. Thus the total age effect on social comparison level of aspiration shows that younger children more frequently chose the easy tasks and less frequently chose either the moderately difficult or hard tasks.

In summary, social comparison achievement motivation is higher among the older children, as predicted.

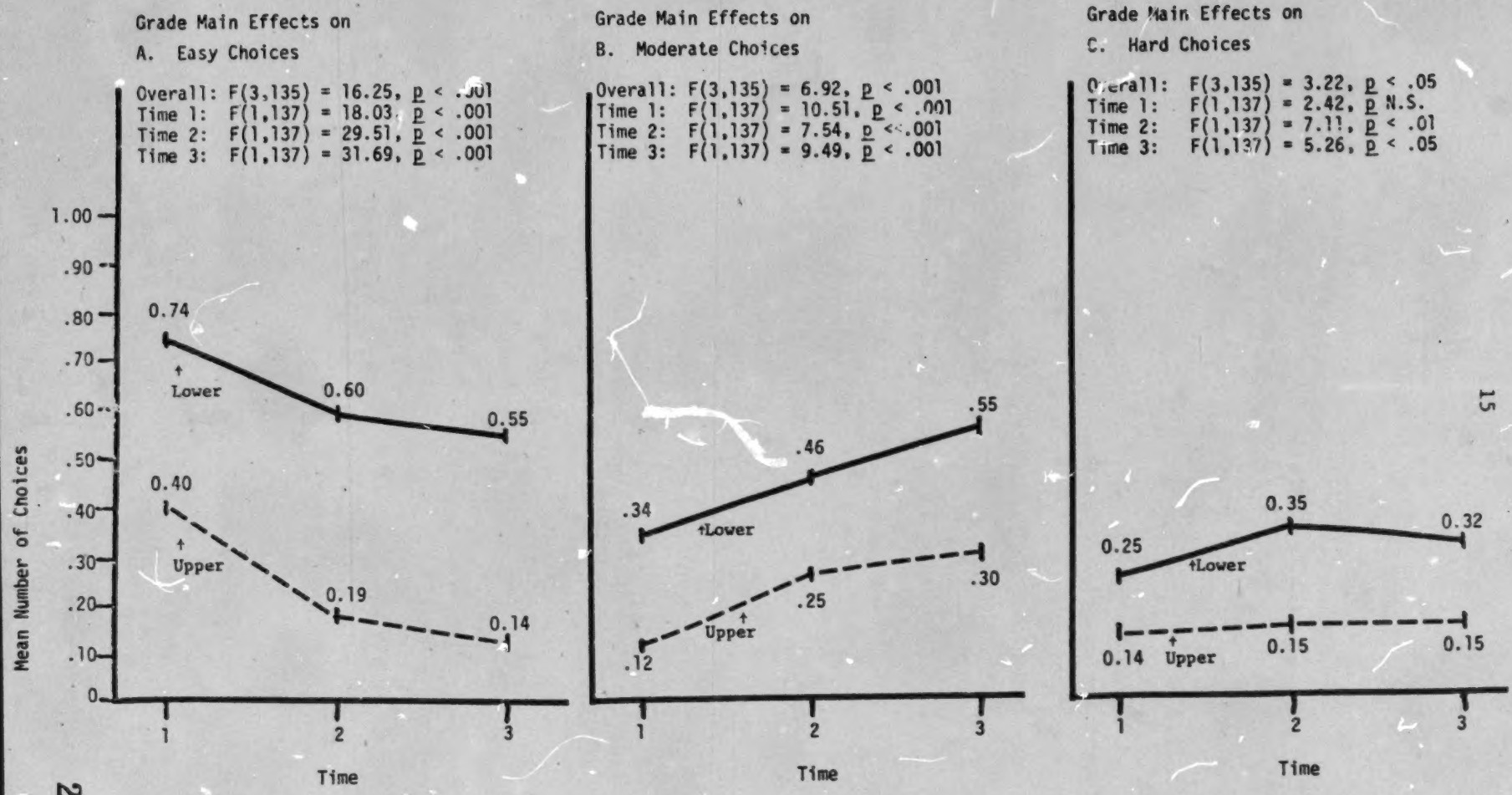

Figure 2. The effect of grade on easy, moderate, and hard social comparison level of aspiration task choices at three times.

Hypothesis 2: Autonomous achievement motivation will be stronger in the lower grade than in the upper grade sample on the fantasy measure of autonomous achievement motivation. This hypothesis is not supported at any time period. Indeed, Figure 3 indicates that the general grade effect on autonomously-based achievement imagery across the three time periods tends to be contrary to the prediction and at both time 1 and time 3--the ends of the school years--fourth/fifth graders displayed significantly more autonomously-based achievement imagery than first/second graders; a similar trend is evident at time 2. Both sex and race

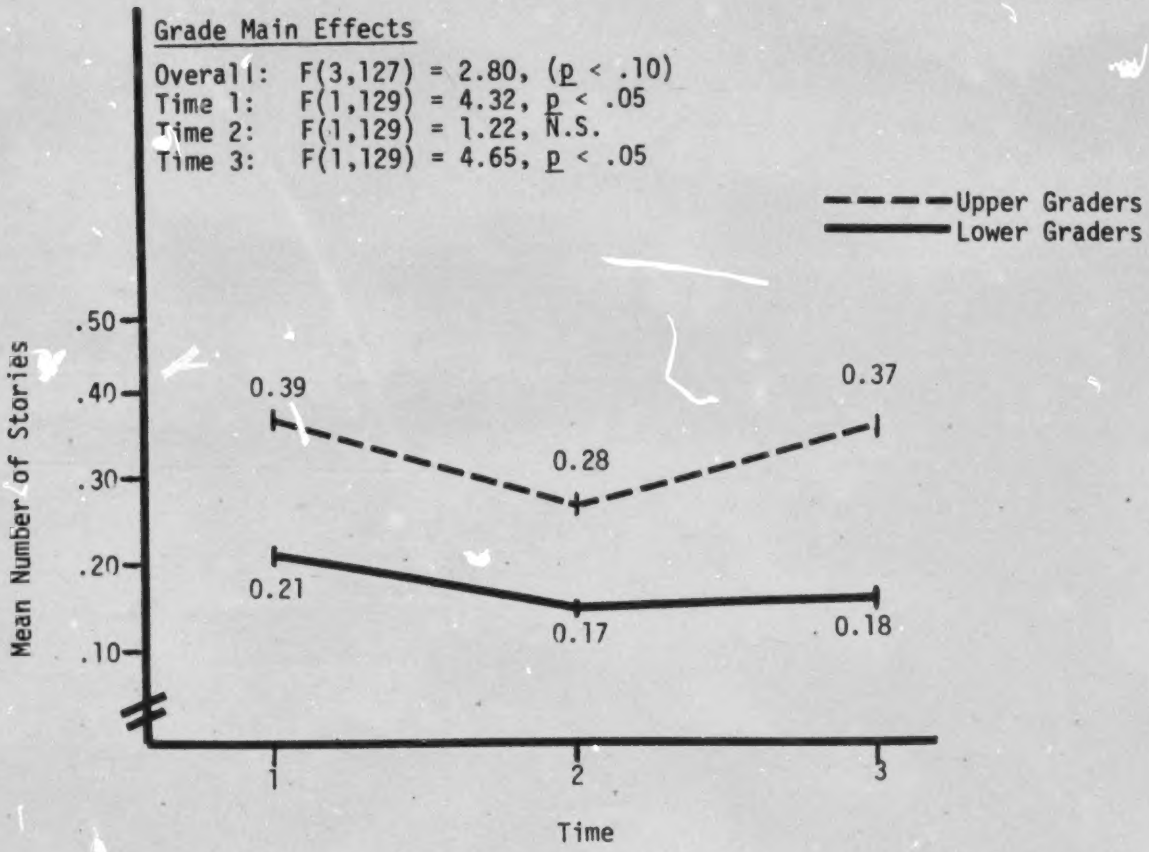

Figure 3. The effect of grade on autonomously-based achievement imagery at three times.

significantly modify these age effects (see Figures 4 and 5), although all significant simple effects are in the same direction as the main effect. Younger girls told stories with less autonomously based achieve-

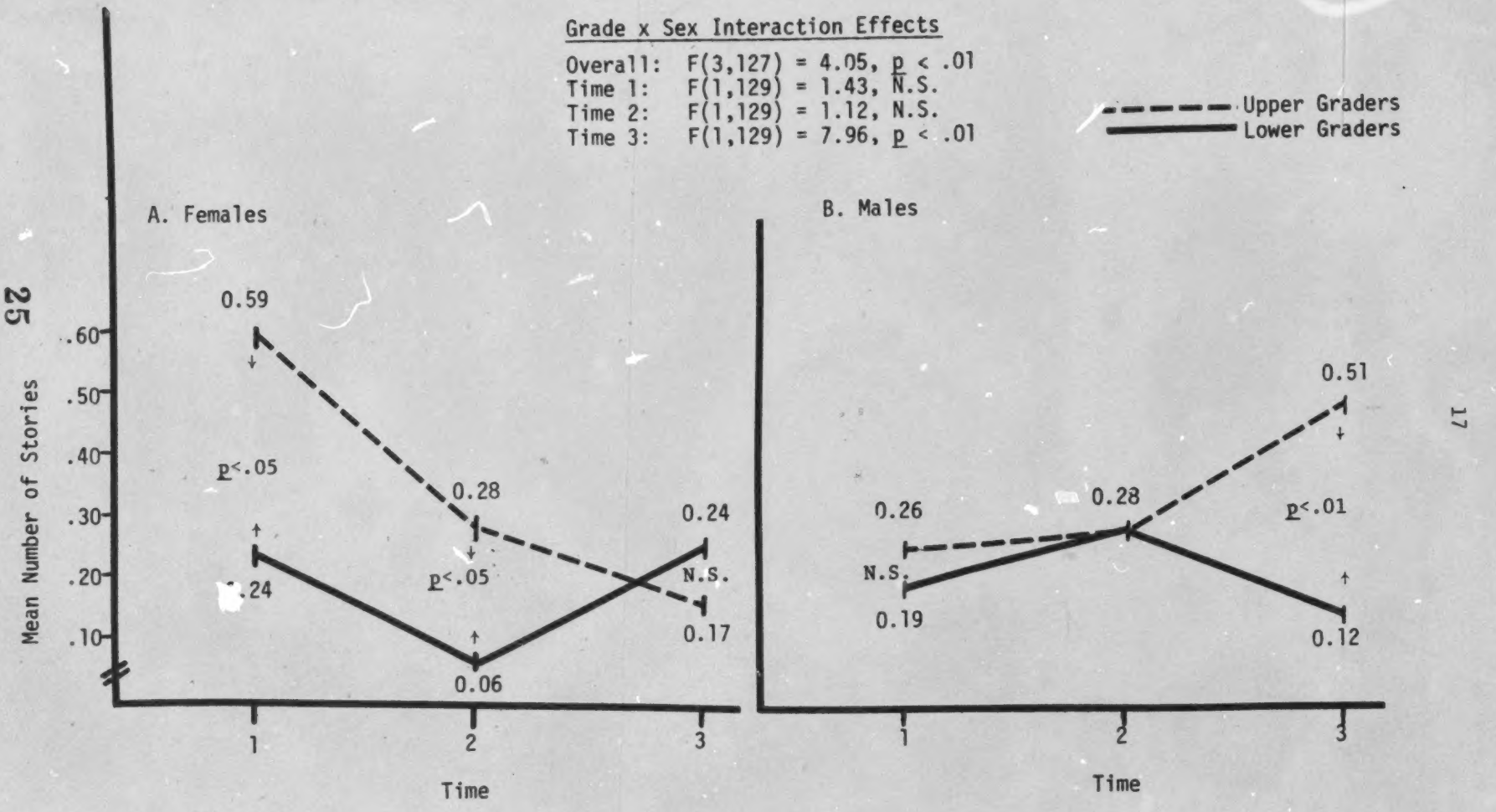

Figure 4. The effect of grade and sex on autonomously-based achievement imagery at three times.

Grade x Race Interaction Effects

Overall: $F(3,127) = 3.76$, $p < .05$
Time 1: $F(1,129) = 3.70$, $(p < .10)$
Time 2: $F(1,129) = 2.43$, $p < .05$
Time 3: $F(1,129) = 5.45$, $p < .05$

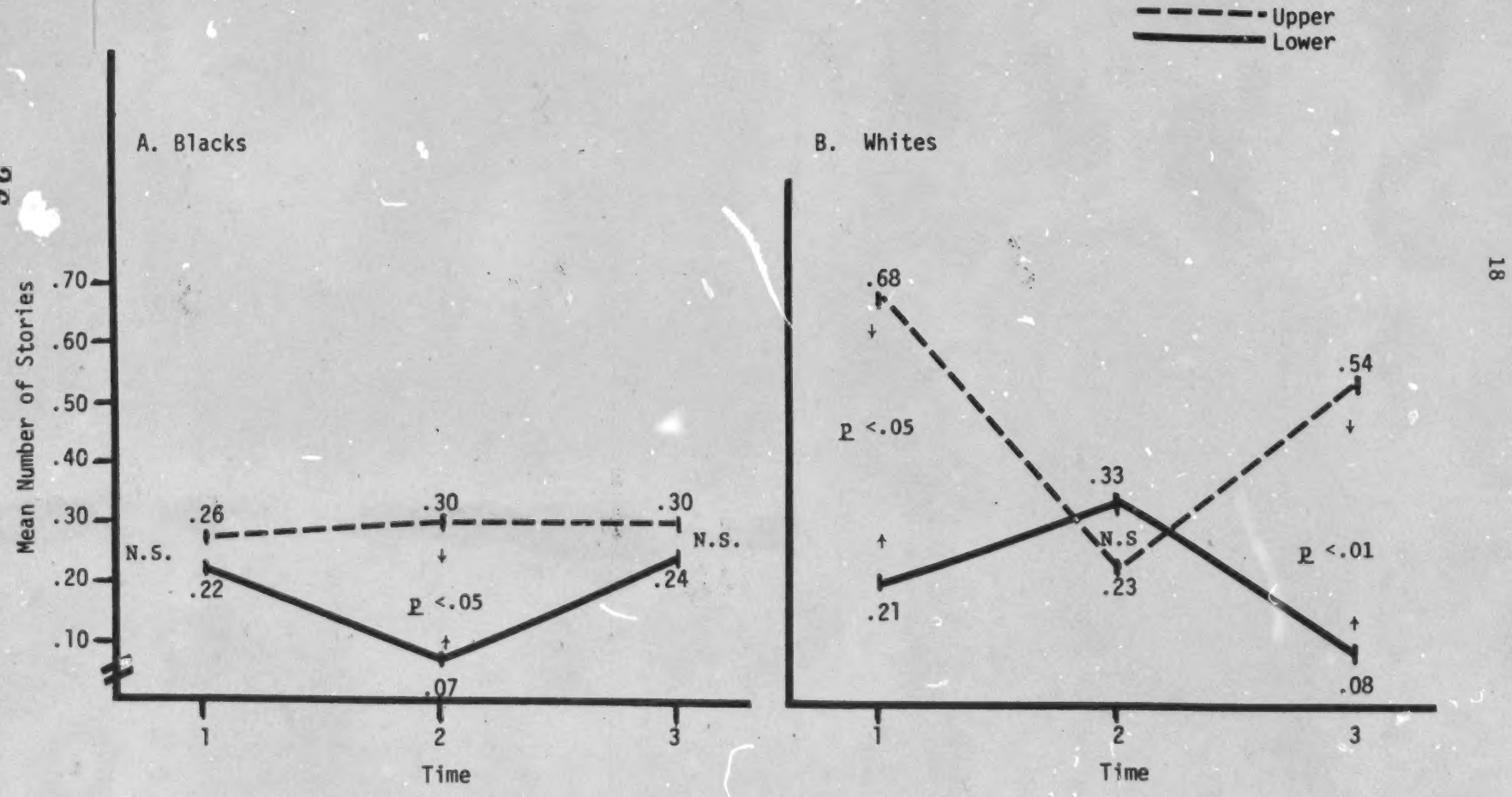

Figure 5. The effect of grade and race on autonomously-based achievement imagery at three times.

ment imagery than older girls at times 1 and 2, while younger and older boys showed a similar difference only at time 3. Older black children displayed significantly higher autonomous achievement imagery than younger ones at time 2; for whites, the similar age difference is significant only at times 1 and 3.

Reanalysis of time 1 autonomous achievement imagery scores corrected for story length indicated that the grade effect at this time period is primarily due to the longer stories told by older children. There is no significant grade effect for autonomous achievement imagery corrected for story word count. However, race does modify the age results for the corrected scores (grade x race interaction, $F(1,129) = 4.25$ $p < .05$); younger white children displayed significantly less autonomous achievement imagery than older white children, but the grade effect for black children is not significant. These race results are similar to those reported in Figure 5 for the uncorrected scores at time 1.

In general then, we conclude that there is no support for the hypothesis of stronger autonomously-based achievement motivation in younger than older children. Some results are clearly contrary, younger children telling stories with less autonomous imagery than older children, but these differences do not occur at all time periods for either sex group or either race group.

Although no predictions were made regarding grade differences on the autonomous tasks, the effects were tested. As Figure 6 indicates, there are no significant differences in the number of moderately difficult autonomous task choices made by younger and older children at any time period. But younger children significantly more often set easy levels of aspiration and less often set hard levels of aspiration than older children. The age differences in easy and hard autonomous levels of aspiration are thus similar to those for easy and hard social comparison levels of aspiration. And while moderate social comparison levels of aspiration are more common among older than younger children, there are no significant grade differences in moderate autonomous levels of aspiration.

Hypothesis 3: Social comparison achievement motivation will show an increase over time for the cohorts of younger and older children. Figures 1 and 2 indicate support for this hypothesis. Both younger and

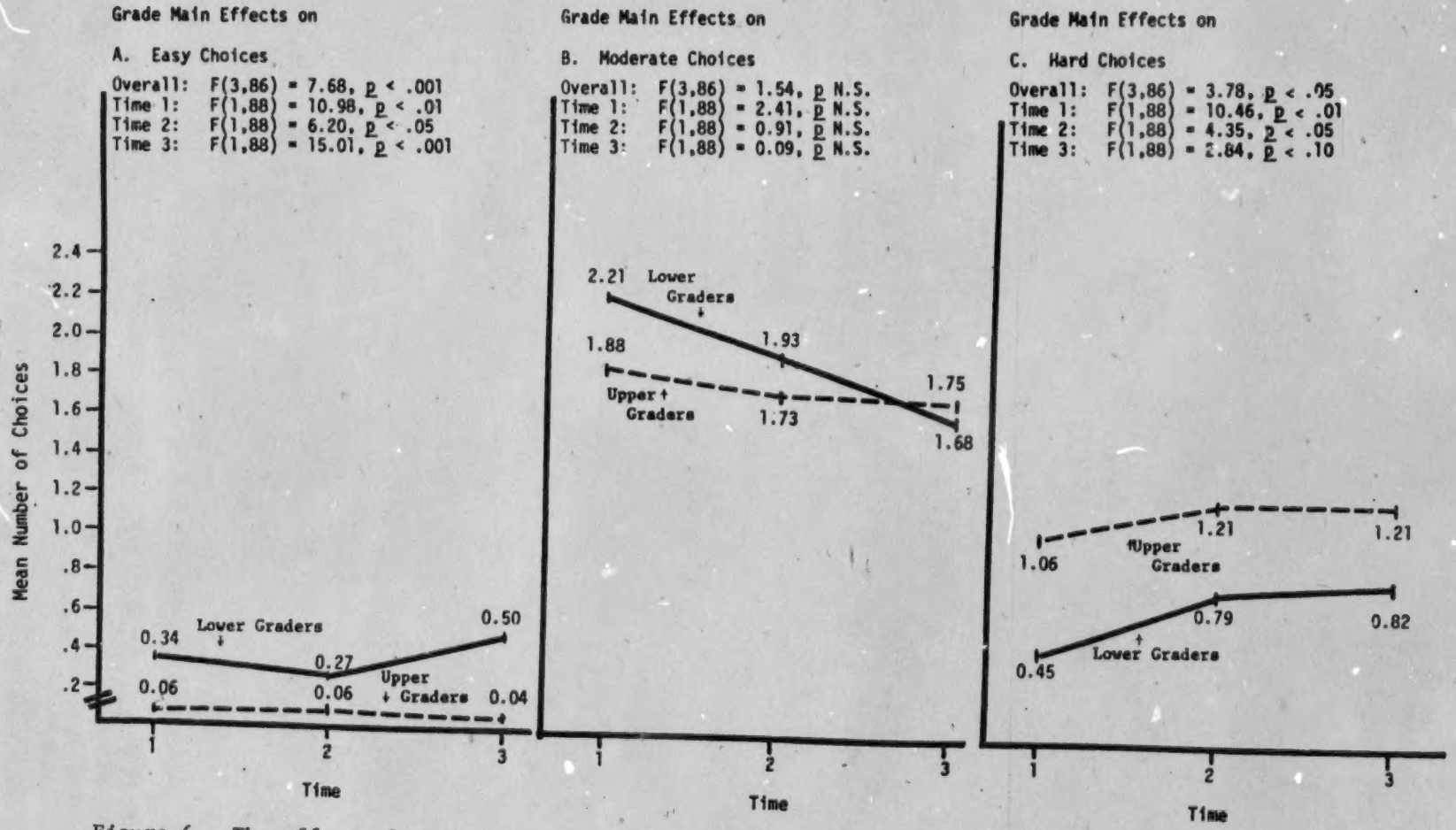

Figure 6. The effect of grade on easy, moderate, and hard autonomous level of aspiration task choices at three times.

older children displayed successively more social comparison achievement motivation from the end of first/fourth grades (time 1) to the beginning of the second/fifth grades (time 2) to the end of second/fifth grade (time 3). These changes were tested within the two grade levels by comparing the means for each pair of time periods using a t-test for correlated measures.

The increases in social comparison achievement imagery between the two studied school years are significant for younger and older children (from time 1 to time 2, second graders' $t = 2.00$, $p < .05$, $n = 65$, and fifth graders' $t = 3.06$, $p < .01$, $n = 72$; from time 1 to time 3, second graders' = $t = 3.27$, $p < .001$, $n = 65$, and fifth graders' $t = 3.60$, $p < .001$, $n = 72$). But the changes in social comparison achievement imagery from the beginning to the end of second/fifth grades (from time 2 to time 3) are not significant for either age group.

The choice of tasks presented as of moderate difficulty for someone of their age rose significantly during the period spanning the end of grades one and four to the end of grades two and five for both younger and older children (from time 1 to time 3, second graders' $t = 2.74$, $p < .01$, $n = 73$ and fifth graders' $t = 2.50$, $p < .05$, $n = 71$). And younger children, but not older ones, increased their moderate social comparison level of aspiration from time 1 to time 2, ($t = 2.13$, $p < .05$, $n = 73$ for younger children). Neither age group displayed a significant increase from time 2 to time 3. This increasing number of decisions to try tasks moderately difficult for one's peers is part of a total pattern that includes a shift away from easy social comparison levels of aspiration and relative stability in hard social comparison levels of aspiration. Figure 2 displays this entire pattern. The younger and older children decreased their choice of easy tasks from time 1 to time 3 (second graders' $t = 2.90$, $p < .01$, $n = 75$ and fifth graders' $t = 4.02$, $p < .001$, $n = 71$), and from time 1 to time 2 (second graders' $t = 2.21$, $p < .05$, $n = 73$ and fifth graders' $t = 3.37$, $p < .001$, $n = 71$). The differences in easy choices between time 2 and time 3 are not significant. And none of the shifts in difficult choices displayed in Figure 2 is significant.

In general then, the hypothesis predicting increases in signs of social comparison achievement motivation during the studied age spans

is supported.

Hypothesis 4: Autonomous achievement motivation will show a decline over time for the cohorts of younger and older children on the fantasy measure. There is no support in Figure 3 for the hypothesized decline in the strength of autonomous achievement motivation, as assessed by the content analysis of stories. Younger children's low frequency of stories with autonomous achievement imagery is essentially unchanged for the three periods of measurement, and the slight changes in older children's autonomous achievement imagery are not significant.

Although no predictions were made about cohort changes in level of aspiration on autonomous achievement tasks, the data in Figure 6 were subjected to t-tests. The older children did not reliably shift their moderate autonomous level of aspiration over time. There was, however, a significant decline in moderate autonomous task choices for younger children between the end of grade one and the end of grade two (from time 1 to time 3, $t = 2.67$, $p < .05$, $n = 44$). The full nature of the changes in autonomous level of aspiration during the year long experimental period is seen when the shifts in easy and hard choices are considered. There were no reliable changes over time in the setting of easy levels of aspiration for either younger or older children, but younger children increased their frequency of hard autonomous task choices from the end of grade one to the beginning of grade two (from time 1 to time 3, $t = 2.25$, $p < .05$, $n = 44$), and a similar trend was in evidence between the end of grade one and the end of grade two ($t = 1.97$, $p < .10$, $n = 44$).

It appears that the autonomous achievement orientation of the older pupils is quite stable during the period encompassing the end of grade four to the end of grade five; both fantasy and behavioral measures of achievement motivations show this stability. The evidence concerning younger children is less clearcut. While the projective measure of autonomously-based achievement motivation is stable over the times of measurement, the level of aspiration of the younger children shifts away from the presumably highly motivated choices of moderately difficult tasks toward choices that are overaspiring based on their own past performance. Thus there is some slight suggestion of a decline in autonomous achievement motivation from the end of grade one to the end of grade two.

Discussion

The stronger social comparison achievement motivation of older than younger groups of children and the increase over time in the social comparison motivation scores of children at both age levels provide corroboration for Veroff's theory that a social orientation in achievement situations becomes increasingly salient throughout the early years of school.

The increased orientation of the upper graders to social comparison standards of excellence in achievement situations can be viewed in a developmental context as part of a broader shift from individual to social concerns. It is between the ages 6 and 10 that Piaget (1965) sees the transition from egocentric to social standards in moral judgments. Erikson (1950) identifies this period as crucial for the development of a "sense of division of labor and of differential opportunity." For both these theorists, the transition to more social awareness involves the increasing opportunities of the growing child for social contact and the enhanced ability of the child to understand and empathize with the actions and thoughts of others.

Studies of competition and rivalrous behavior have shown that competition and rivalry increase from the ages of 4 and 5 to 7 and 9 (Kagan and Madsen, 1971; Kagan and Madsen, 1972). Although social comparison does not necessarily imply competition with others, i.e., the desire to maximize outcomes for the self versus the other, competition with others does require comparisons between self and others. The reason for lack of competition among younger children may be that they do not tend to compare their own outcomes with those of others. A study by McClintock and Nuttin (1969) is suggestive in this regard. Their investigation of strategy differences between second-, fourth-, and sixth-grade American and Belgian students on decomposed Prisoner's Dilemma games showed that the younger children preferred a strategy that maximized their own total score--a strategy that does not require attention to the opponent's outcome--whereas the older children attempted to maximize their score relative to the score of another.

Thus it seems that a number of theoretical and empirical works have identified the early school years as crucial for the development of social orientations. The social comparison process appears to become very important during this time, and it is within this context that the

child's achievement motivation becomes oriented toward social standards.

The results for autonomous achievement motivation are not as clear as those for social comparison. Data from the level of aspiration measures indicate, in agreement with previous research (Veroff, 1969), that autonomous achievement motivation is fairly stable as early as the first grade. The projective measure, however, shows an overall tendency ($p < .10$) over the three times of assessment for the upper graders to produce more autonomous imagery than the lower graders. That this result reflects underlying motivational changes is questionable in light of both Veroff's and our findings based on level of aspiration setting, which suggest a lack of growth of autonomous concerns after the beginning elementary school years. Veroff (1969) did report that scores on a projective measure of "integrated" achievement motivation (in which a distinction was not made between autonomously- and socially-based standards) increased steadily when comparing 1st through 6th graders. He interpreted this finding as indicating that the integration of autonomous and social comparison orientations is progressive with age. It is interesting however that this progression occurred very early (from kindergarten to first grade, and to second grade), at ages when social concerns are not supposed to be well developed and when increased "integration" seems an unlikely explanation. Our data, which show age differences on both the social comparison and autonomous projective indices, suggest another possibility--an artifactual increase related to the greater verbal skills of the older children. Veroff's analysis as well as our own discount story length as the covariable which produces this age difference, but it may be that the sensitivity of the projective measure to underlying motivational orientations increases with the growing expressive abilities of the child.

Whatever turns out to be the reason for the higher scores of the older children, we are faced with the clear contradiction of our hypothesis that increasing social concerns on the fantasy measure would lead to a reduction in the amount of autonomously-based imagery produced by the upper graders. It appears that rather than transforming autonomous to social standards, a concern for social comparison broadens the types of situations that are seen in achievement terms. Situations that were previously perceived to offer potential gratification for autonomous strivings still tend to be perceived in those terms. However, other situations that

previously appeared not to be achievement related are now perceived as offering potential gratification for social comparison achievement strivings.

A final methodological comment about the separate scoring of autonomously-based and socially-based achievement imagery seems warranted. The general congruence in findings between the level of aspiration measures and these projective measures is impressive to us, and we would recommend the continued use of this refinement in the scoring system for achievement imagery, at least in research relating to children. But even though the behavioral and projective measures yielded relatively consistent results, there were instances where they yielded different results, most noticeably in comparisons of autonomous motivation between second and fifth graders. The inconsistencies, as well as the need for further validation of the projective measures, suggest that at present the measures should probably be used in conjunction with one another.

Sex Differences in Achievement Motivation

Introduction

Conflicting theory and data exist concerning sex-differences in the fantasy measure of achievement motivation. Intellectual arousal instructions typically yield increases in achievement imagery for males but not for females (Alper & Greenberger, 1967; Veroff, Wilcox, & Atkinson, 1953), sex of the stimulus figures in pictures appears to affect the predictive validity of achievement imagery scores for female subjects (Lesser, Krawitz, & Packard, 1963), and ability moderates the relationship between achievement motivation and school performance differently for boys and girls (Gjesme, 1973).

Recent work using Veroff's distinction between achievement motivation based on autonomous or social comparison standards of excellence also yields ambiguous results on sex differences. As a subsidary part of his theory, Veroff (1969) argues that boys in our society are typically given greater opportunity and freedom to explore their environment and to develop a sense of their own effectiveness at a relatively early age. Furthermore, the social support for the traditional masculine sex-role should typically foster the positive affective component of autonomous

strivings in boys. This implies that boys' autonomously based achievement motivation should be stronger than girls, at least during the early elementary school years. This argument is supported by Nakamura and Finck's (1973) findings that among 9-12 year old upper middle class children, boys are more likely than girls to make task-oriented evaluations of performance while girls make more socially-oriented evaluations. In addition, Veroff proposes that boys who do not master demands for autonomous standard setting are likely to develop an impulsive achievement orientation reflected in over-aspiration, while girls who do not master autonomy are likely to develop a cautious approach to achievement, reflected in underaspiration.

On the other hand, Kipnis (1973) has argued that the greater freedom often accorded to boys has the effect of forcing boys to rely on peer comparison for self-appraisal, while the frequently closer parental supervision and dependency of girls foster their acceptance of parental standards as their own and give them a basis for self-appraisal that does not rely on peer comparisons. Kipnis, in contrast to Veroff, predicts that girls would show stronger autonomous achievement motivation than boys and that boys would display stronger social comparison achievement motivation than girls. This view is consistent with the finding of Waldrop and Halverson (1973) that seven year old boys had more extensive social relations than girls, since the male pattern would imply a more universalistic basis for social comparison.

Veroff's data from a large study of children in grades K-6 were contrary to his prediction. On tasks where only autonomous standards of excellence were available, girls in grades 1-6 made moderate level of aspiration choices significantly more frequently than boys. Only in kindergarten did boys display more autonomous achievement motivation than girls. No sex differences in the choice of the moderate level of aspiration alternative on social comparison tasks were predicted, and no consistent sex differences were found. Callard (1964), studying nursery school children, also found that girls significantly more often than boys made choices of moderately difficult alternatives on the Veroff autonomous tasks. On the other hand, Radin and Epstein (1975) did not find sex differences in preschool age boys' and girls' choices of moderate autonomous or social comparison levels of aspiration. Baker (1973) reported

that elementary school-aged girls displayed higher fantasy autonomous achievement motivation than boys, when controlling for grade level, I.Q., race, and socioeconomic status, and that there were no sex differences in fantasy social comparison achievement motivation. Baker's study is particularly germane since the present method for scoring social and autonomous achievement motivations from story content was used.

Boys in grades K-6 did make significantly more of the difficult autonomous level of aspiration choices than girls in the Veroff study, as predicted. They also more often chose the hardest task when social comparison was the standard of excellence. That boys are more likely than girls to choose to repeat very difficult tasks, regardless of whether the standards for defining difficulty were based on self- or social-comparison, is consistent with Veroff's assumption of greater impulsive overaspiration in boys and with other research (Crandall, 1969; Rand, 1965) demonstrating lower subjective expectancies of success for girls than boys given similar ability or prior performance.

Veroff also found lower total fantasy need achievement scores for girls than boys when based on stories about male pictures. And for older children (grades 5 and 6), those with the highest fantasy need achievement scores were boys low in behaviorally measured social comparison achievement motivation and high in behaviorally assessed autonomous achievement motivation. These results led Veroff to suggest that an orientation to autonomous standards may predominate in boys' fantasy need for achievement while girls' fantasy need for achievement may be more likely to reflect social comparison standards of excellence.

These somewhat contradictory theoretical ideas and data prompted us to take a conservative approach to these data, so sex differences will be considered to be established only when their presence or absence is replicated across time of measurement or methods of assessment.

Results

Sex differences were tested among two sets of subjects, first with all those children with adequate data on the relevant measure of achievement motivation at time 1 and again for all children available at time 3. Several three-way analyses of variance were used in which sex, race, and grade were the factors. Race and grade were included in these

analyses solely for control purposes, and, therefore, only the main effects of sex or interactions involving sex are reported in this section.

Two univariate analyses of variance on social comparison achievement imagery were performed to test the sex effects (with race and grade as subsidary factors), one for all children studied at the end of grades one/four (time 1), and another for those tested at the end of grades two/five (time 3). There are no significant sex differences in social comparison achievement imagery at either time. (At time 1, the mean social comparison imagery is 0.40 for boys and 0.64 for girls with the main effect for sex $F(1,181) = 2.53$, $p < .10$; at time 3, the comparable figures are respectively 0.98 and 1.21, with sex $F(1,176) = 3.05$, $p < .10$.) Neither race nor grade significantly modify these results, nor is there any significant sex difference when the correction for length of stories is applied to the time 1 scores.

Sex differences on the social comparison level of aspiration measures were tested by one multivariate analysis of variance for time 1 subjects and another for time 3 subjects. In each analysis moderate, easy, and hard social comparison choices were used as the multiple dependent variables because of the interdependence of the measures of social comparison task choices; and sex, race, and grade were the factors. These multivariate tests indicate no overall sex effects on social comparison level of aspiration choices at either time (see Figure 7). Sex differences on specific types of choices as tested by three univariate analyses of variance at each time period are therefore minimal. In particular, boys and girls were equally likely to choose to attempt a task of moderate difficulty for their peers at both time 1 and time 3. Race modifies this sex similarity at the end of the second/fifth grades (race x sex $F(1,185) = 5.47$, $p < .05$), but because no comparable interaction between sex and race was found at time 1, this interaction is not described here. The results in general support the conclusion that boys and girls do not differ in social comparison achievement motivation measured by fantasy or level of aspiration. There are no reliable sex differences in under- and over-aspiration. Figure 7 indicates that at both times boys tended less often to set an easy social comparison level of aspiration and more often chose to try a task alleged to be very hard for their age, but only the difference in easy choices at time 3 is significant.

Sex Main Effects

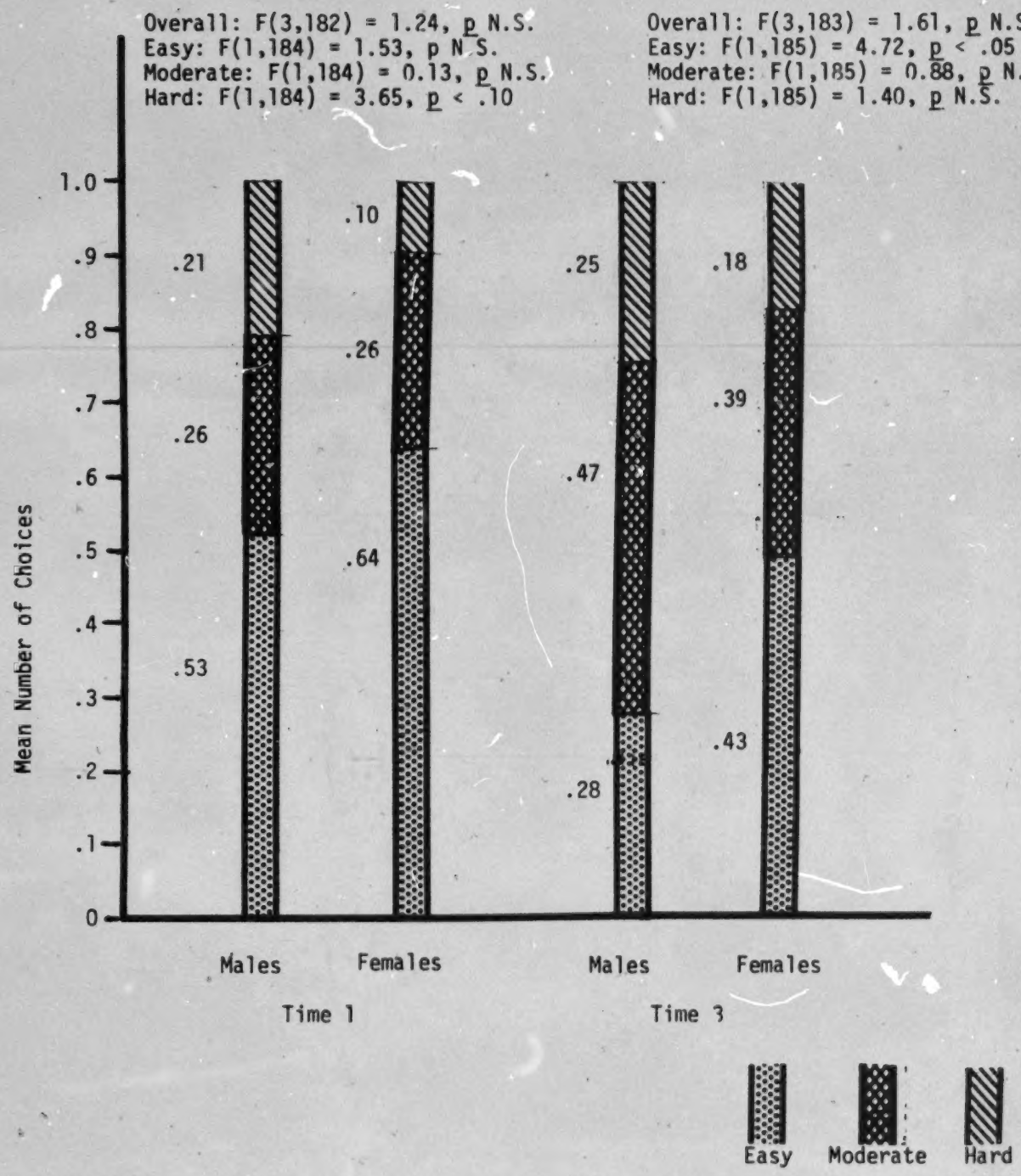

Figure 7. The effect of sex on social comparison level of aspiration task choices at time 1 and time 3.

Using the same statistical tests as those applied to social comparison measures, we find only limited evidence of reliable sex results concerning autonomous achievement imagery or levels of aspiration. At time 1, both behavioral and fantasy assessment procedures show some evidence of lower autonomous achievement motivation for boys than girls. At that time period, boys told stories with significantly less autonomously based achievement imagery than girls [mean for boys = 0.24 and for girls = 0.45, with main effect for sex $F(1,181) = 5.06$, $p < .05$]. This difference is maintained [$F(1,181) = 4.42$, $p < .05$] when the imagery measures are corrected for story length. Although the multivariate analysis of variance for easy, moderate, and hard choices at time 1 does not show a significant main effect for sex ($p > .10$), the univariate analysis of variance for the achievement-motivated choice--repetition of tasks of intermediate difficulty--does show a difference for boys and girls (Figure 8). Boys are significantly less likely to make such task choices than girls ($p < .05$), which is consistent with the boys' lower level of autonomous achievement imagery.

The results from time 3 concerning autonomous achievement motivation are not consistent with those from time 1. No significant sex effects are found in story telling (mean for boys = 0.34 and for girls = 0.24, with main effect for sex $F(1.176) = 1.32$, $p > .10$). Similarly, the overall multivariate test of the sex difference in easy, moderate, or hard autonomous levels of aspiration is not statistically significant, although boys tended to make moderate task choices more than girls, a trend opposite to the sex difference found a year earlier (Figure 8).

In sum, at time 1 both behavioral and fantasy assessment procedures indicate that boys displayed lower autonomous achievement motivation than girls, regardless of grade or race. But the time 3 data do not replicate these differences; indeed, they tend to show the opposite sex effect.

Sex differences in over- and under-aspiration are also not reliable over time, as Figure 8 shows. At time 1, there is no significant sex difference in number of easy autonomous choices, but boys made significantly more hard autonomous choices than girls. In contrast, at time 3, the total group of boys and girls do not differ significantly in either easy or hard autonomous choice. At time 3 there are significant

Sex Main Effects

Overall: $F(3,145) = 2.40$, $p < .10$
Easy: $F(1,147) = 0.32$, p N.S.
Moderate: $F(1,147) = 4.52$, $p < .05$
Hard: $F(1,147) = 7.29$, $p < .01$

Overall: $F(3,165) = 1.74$, p N.S.
Easy: $F(1,167) = 3.55$, $p < .10$
Moderate: $F(1,167) = 3.00$, $p < .10$
Hard: $F(1,167) = 0.54$, p N.S.

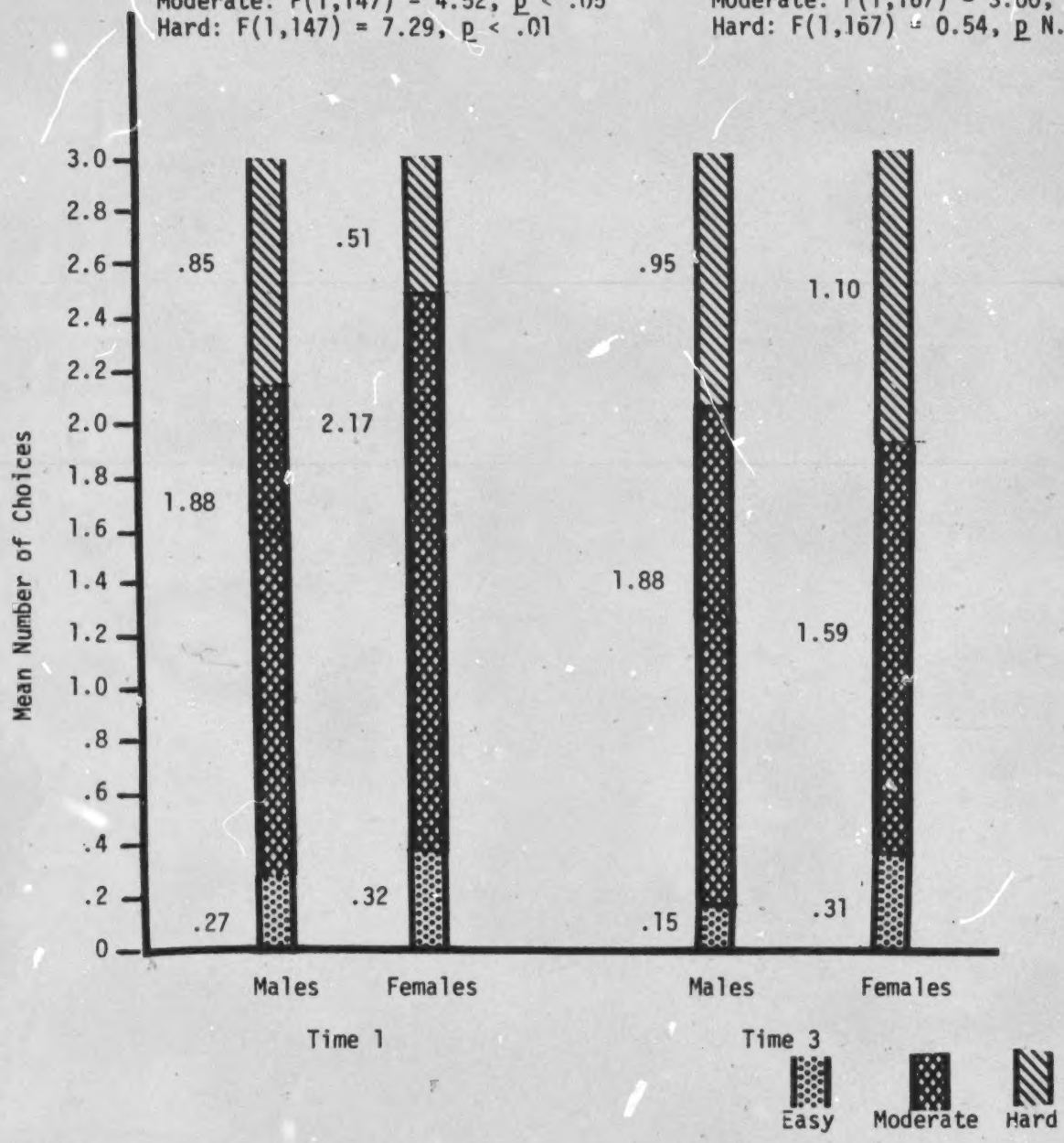

Figure 8. The effect of sex on autonomous level of aspiration task choices at time 1 and time 3.

sex x race interactions for both easy choices [$F(1,167) = 5.79$, $p < .05$] and hard choices [$F(1,167) = 4.45$, $p < .05$], but at time 1 race does not significantly modify the overall sex effects (the unreplicated interaction effects are not displayed). In conclusion, there is no consistent difference between boys and girls in over-aspiration or under-aspiration in setting goals based on their own past level of performance.

Discussion

No sex differences were found in the choice of a moderately difficult level of aspiration in a social comparison situation at either time of measurement, consistent with Veroff's (1969) and Ruhland's (1975) findings. This result is given further corroboration by the data from the projective measure of social comparison achievement motivation, which also showed no significant difference between the sexes at either time of measurement, as did Baker's (1973) study of elementary school children's story-telling.

The few experimental studies of sex differences in competitive versus cooperative orientations are inconclusive. Tedeschi, Hiester, and Gahagan (1969) found third and fourth grade girls to be more cooperative than boys on a version of the Prisoner's Dilemma game. On the other hand, Ruhland's (1975) study of fourth graders at two schools showed greater cooperation by boys than girls on the Madsen form board at one school, and no sex differences in cooperation at the other school. McClintock (1974) has suggested that the confused findings on sex differences in cooperation for children and adults may stem from the reliance on tasks where maximizing joint gain (cooperation) is in conflict with maximizing relative gain (competition), while the sexes may differ in their orientations toward maximizing own gain (individualism). His proposal that females are more individualistically oriented is consistent with the higher autonomous achievement motivation in girls reported by a number of investigations (Baker, 1973; Callard, 1964: Veroff, 1969). This finding was replicated in the present study at the first testing period on both the behavioral and projective measures of autonomous achievement motivation. However, no significant differences between the sexes were found at the later testing period, raising some doubt as to the generality of the results from the first testing period.

The total set of results on sex differences does not clearly support either Veroff's (1969) or Kipnis' (1973) theory. The lack of sex differences in social comparison achievement motivation is contrary to Kipnis' view that boys rely more on peers for self-evaluation than girls and is keeping with Veroff's views. On the other hand, although the data are not entirely consistent, the indications that girls displayed stronger autonomous achievement motivation than boys are in keeping with Kipnis' theory but contrary to Veroff's. Research on sex differences in achievement motivation remains in a state of inconsistency.

Racial Differences in Achievement Motivation

Introduction

Prior research on differences in the achievement motivation of black and white children has been rather limited in scope and suffers from major methodological difficulties, but in nearly all instances available results show that black children have lower achievement motivation measured by standard fantasy-based assessment techniques (Baughman & Dahlstrom, 1968; Merbaum, 1960, 1961; Mech, 1973; Mussen, 1953). And in one study (Veroff & Peele, 1969) using the Veroff behavioral measures, black children displayed lower autonomous and social comparison achievement motivation than white children.

A number of researchers have suggested that black children's lower achievement motivation is due to very high standards of excellence. Katz (1967) has been the main proponent of this argument. Veroff (1969) and Veroff & Peele (1969) found that black elementary school boys (but not girls) were more likely than white boys to choose at least one of the most difficult choices in the task measure of autonomous achievement motivation. They did not find any overall differences in the nature of non-moderate social comparison choices. The results for autonomous levels of aspiration thus tend to support Katz's view of low achievement motivation in black children being indicative of over-aspiration rather than general avoidance of moderate choices typical of low achievement motivation. Again, because of the contradictory nature of theory and data in this area as in sex differences, only replicated results will be considered noteworthy.

Results

The same statistical methods were used to test race differences as those applied to sex differences, except that the race effects were tested at time 1 and time 3 with a model that eliminated the sex and grade effects from the race effects.

The results tend to support the conclusion that social comparison achievement motivation is lower for black than for white children. Black children told stories with significantly less social comparison achievement imagery than white children at both times. At time 1 the mean social comparison achievement imagery for blacks = 0.48 and for whites = 0.72, with the race main effect $F(1,181) = 6.99$, $p < .01$; at time 3 the comparable figures are respectively 0.93, 1.34 and $F(1,176) = 9.02$, $p < .01$. The length of the stories did not account for the overall race difference at time 1; the race effect is maintained [$F(1,181) + 4.44$, $p < .05$] when tested with imagery scores corrected for story length.

Race differences on the social comparison level of aspiration measures at the two time periods were tested by multivariate analyses of variance in which easy, moderate, and hard task choices were the multiple dependent variables. Figure 9 indicates that the multivariate test of whether race effects levels of aspiration on the social comparison task is not significant at either time period. But the univariate tests for each type of task choice suggest some consistent differences in the frequency of moderately difficult achievement-oriented choices made by black and white children. At time 3 black children made significantly fewer choices of the task of moderate difficulty for their peers than white children, and at time 1 there is a similar trend for black children less often to choose the moderately difficult task ($p < .10$). Although there is some evidence from time 3 that sex may moderate race differences in achievement motivation [race x sex $F(1,185) = 5.47$, $p < .05$], there is no similar evidence from the first time of measurement, so the unreplicated interaction effects are not discussed here.

Racial differences in under-aspiration in relation to other's performance are somewhat consistent over time. At both time 1 and time 3 black children made more easy social comparison choices than white children, but neither difference is significant ($p < .10$ for each). At

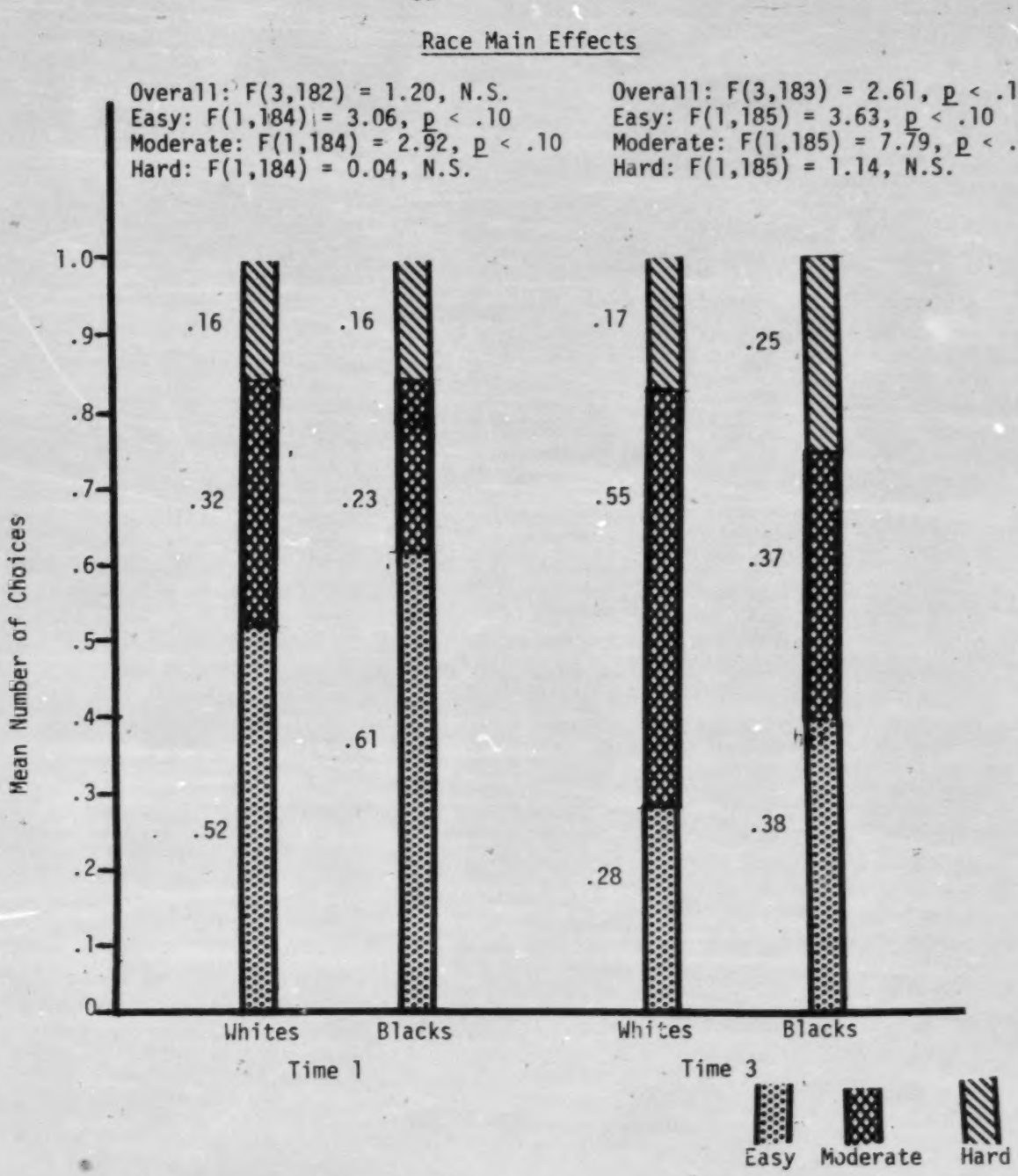

Figure 9. The effect of race on social comparison level of aspiration task choices at time 1 and 3.

neither time period did black and white children differ significantly in frequency of the hard social comparison choice.

In general then, the data from assessment of social comparison achievement motivation by either content analysis of stories or moderate level of aspiration support the conclusion of lower social comparison achievement motivation among black than among white children. There is no evidence for differences in over-aspiration between black and white children, and only suggestive replicated evidence that black children who were not high in social comparison motivation were more likely than white children to set low social comparison standards of excellence.

With one exception, the results indicate similarity in the level of autonomous achievement motivation for black and white children. There are no significant racial differences in the amount of autonomous achievement imagery produced at either time of measurement. Mean autonomously based achievement imagery at time 1 is 0.28 for blacks and 0.39 for whites, with a race main effect $F(1,181) = 1.54$, $p > .10$; the comparable figure for time 3 are respectively 0.30, 0.27, with $F(1.176) = 0.60$, $p > .10$. And Figure 10, which represents the data for level of aspiration on the autonomous tasks, does not indicate any significant race differences in easy, moderate, or hard autonomous choices at time 1. The one exception to the general absence of racial differences in autonomous achievement motivation is found at the final testing time on the level of aspiration measures. The overall multivariate test of the race main effect on autonomous levels of aspiration is significant, and the univariate tests indicate that black children made significantly fewer moderate autonomous choices and significantly more easy choices, although the greater number of hard choices by black than white children is not significant. However, each of these race differences is modified by sex. [The race by sex interaction terms are overall multivariate $F(3,165) = 4.67$, $p < .01$; easy choice $F(1,167) = 5.79$, $p < .05$; moderate choice $F(1,167) = 11.49$, $p < .001$; and hard choice $F(1,167) = 4.45$, $p < .05$.] The race effects at time 3 are thus entirely explained by the different behaviors of white and black girls: white girls significantly more often chose to repeat the moderately difficult tasks and less often chose to repeat tasks they knew were easy or hard for them to do. In contrast, the autonomous choice behavior of the black and white boys does

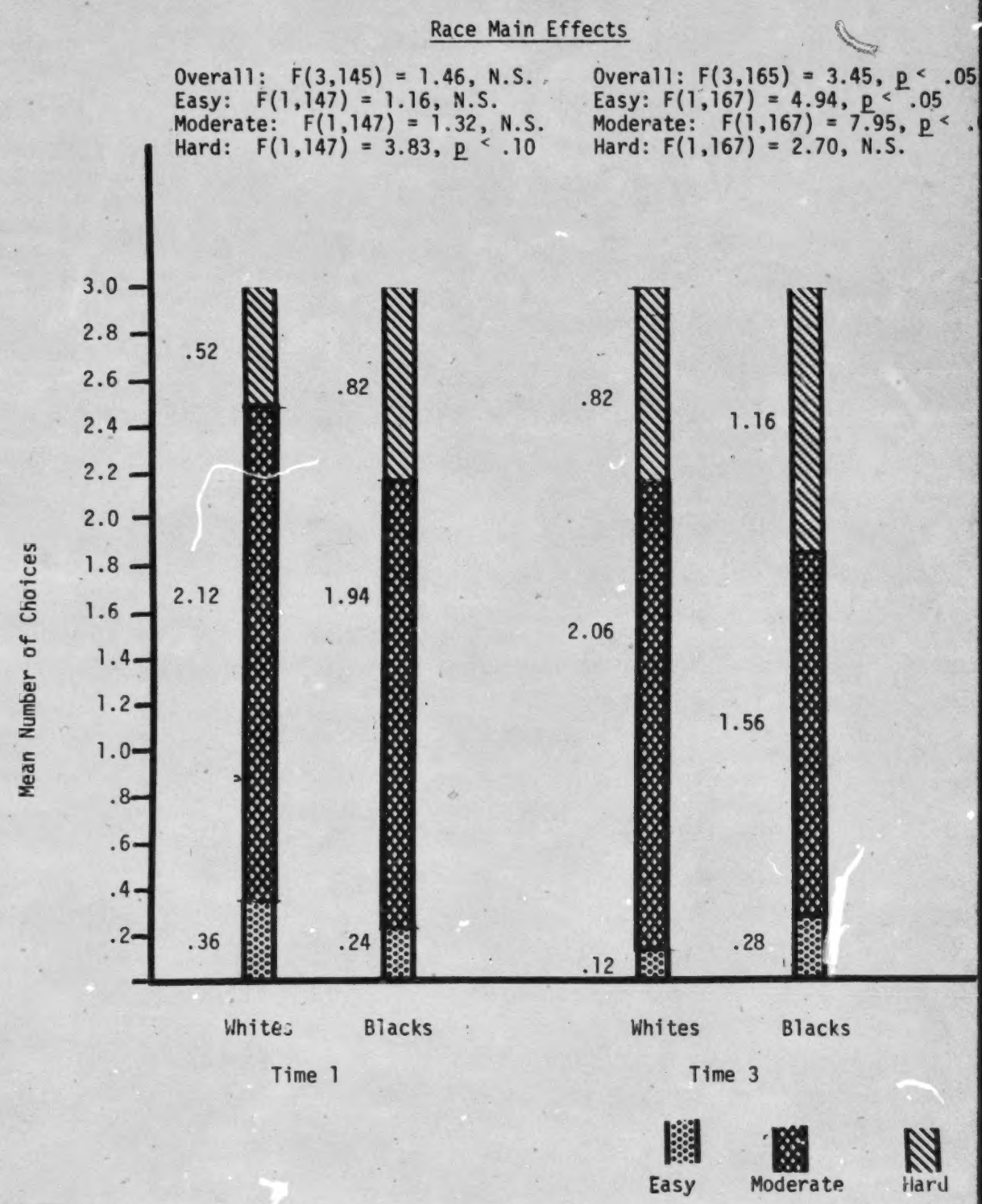

Figure 10. The effect of race on autonomous level of aspiration task choices at time 1 and time 3.

not differ significantly in any respect. Although these results suggest a strong approach achievement motivation for white girls and a low approach motivation or a strong avoidance achievement motivation for black girls at the end of second and fifth grades, the lack of replication of the results at time 1 raises serious questions about their generality.

Discussion

Race differences in achievement motivation are clearly apparent on the social comparison measures. Black children were lower in social comparison achievement motivation at both testing periods on the projective measure, and at time 3 on the behavioral tasks. In terms of Veroff's developmental notions, low levels of social comparison achievement motivation may result either from an unsuccessful resolution of the autonomous stage (a lack of a sense of autonomous competence) or from some problem inherent in the social comparison process itself. The fact that there was little difference between the races on the autonomous measures (only on the behavioral task at time 3) points to the latter interpretation of the racial difference in social comparison achievement motivation.

The social comparison process provides an individual with information concerning one's level of ability in relation to that of others. Ideally, this information might be expected to show children those areas in which they excel, those in which they are average, and those in which they are deficient. For young children, a major source of social comparison information concerning skills comes from the classroom setting. If this information is negative, the comparison process would arouse anxiety, and an orientation to seek out situations where self-evaluations of competence are informed by social comparisons would not develop. These motivational considerations would lead one to expect avoidance of fantasy about social comparison standards of excellence and avoidance of engagement in tasks defined as moderately difficult for peers, since in these situations anxiety would be maximized (Atkinson, 1957). This argument is consistent with the findings of Feld and Lewis (1969) that black second graders are higher in test anxiety than white children, especially when evaluation involves comparisons with others' classroom performance. Further research in this area might focus on the role of classroom interactions in the development of social comparison achievement motivation

in order to begin to understand the conditions under which this development is blocked and if the process does involve more anxiety for black than white children.

Motivational determinants may be reinforced by social reality. Black adults have traditionally been excluded from many of the "challenging" educational and career opportunities available to whites. They may serve as role models for black children who see them as either opting for that which is very easy (they stay in their place) or very difficult (they make it in the white world by extraordinary accomplishments). Thus modeling as well as anxiety-avoidance could be implicated in the lower social comparison achievement motivation displayed by these black children.

An important part of the social comparison process is the information it gives us about our abilities relative to those of our peers. A lack of adequate information because of low motivation for social comparison could pose a serious barrier to realistic educational and career choices for black children.

Achievement Motivation and Scholastic Performance

Introduction

One reason for the failure of previous research consistently to establish a relationship between achievement motivation and scholastic performance among elementary school pupils may be that it has not taken into account the developmental shift in the basis of achievement motivation that we have documented above. We approached this topic therefore with the idea that making a distinction between autonomous and social comparison basis would permit more consistent results to emerge.

Since Veroff suggests that younger children tend to perceive achievement situations in autonomous terms and that older children perceive them in social comparison terms, it would be expected that for younger children, autonomous achievement motivation would be more attached to achievement behavior than would social comparison achievement motivation, and that for the older children social comparison achievement motivation would be more attached to achievement behavior than would autonomous achievement motivation. Specifically we expected that in the early

school years autonomous achievement motivation should be more strongly related to performance than should social comparison achievement motivation; as social comparison begins to dominate, however, it should become more strongly related to performance than autonomous motivation.

Instruments

The procedures for measuring achievement motivation and the subjects in this study having been described above, it remains here to describe the measures of scholastic performance. Two inter-related measures were used, report card grades and scores on standard achievement tests. The report card grades used were the final grades in reading and arithmetic issued to the pupils at the end of the two school years, that is at Time 1 and at Time 3. (The grades of the first grade pupils in one school proved to have almost no variance, so they are not included in this report.)

Since the two schools employed different reporting forms, the D to E grades of one school were collapsed to more nearly match the distinctions made in the other school. Numerical values were than assigned to the letter grades and averaged for each child over both subjects. While this generated similar distributions in the two schools, the distributions were still different enough to persuade us to standardize the grades within each school.

The standard achievement tests were administered in several sessions to each classroom as a group, by the teachers when it was part of the school testing program and by members of the research staff when it was not. Whenever possible, pupils who missed being tested because they were absent were tested alone or in small groups when they were available later. Accommodating to the testing practices of the schools, we employed the Iowa Test of Basic Skills (Lindquist & Hieronymous, 1973) in the fourth and fifth grades; and the California Achievement Test (Tiegs & Clark, 1972) in the first grade at Time 1 and the Metropolitan Achievement Test (Prescott & Balow, 1970) in the second grade at Time 3. We selected sub-test scores of verbal and arithmetic skills from each test and combined just those as measures of scholastic performance.

As expected, there are substantial correlations between report card grades and achievement test scores (Table 1).

Table 1

Relationship (r) between Report Card Grades
and Achievement Test Scores
(by grade level and time period)

	Time 1		Time 3	
		(n)		(n)
upper grade	**.60	(48)	**.63	(89)
lower grade	**.58[a]	(49)	**.52	(91)

a) Includes data from only one school because of lack of variability in the report card grades in the other school's first grade.

Preliminary analyses at each of the three testing periods showed there was little relationship between the motivational measures and either academic achievement tests or report card grades. Since the range of possible scores on the measures of motivation was very small, and since such scores can be greatly affected by immediate experiences of success or failure (see McClelland, Atkinson, Clark, & Lowell, 1953), we decided to combine the scores for all three waves in order to obtain a more reliable index. This resulted in the following scales: number of moderate autonomous choices, range 0 - 9; social comparison choices, range 0 - 3; autonomous achievement imagery, range 0 - 4; and social comparison achievement imagery, range 0 - 9. These motivational indices were then correlated with achievement test scores and report card grades at Time 3. The gamma statistic was used because it is more appropriate than the product-moment correlation where one and/or the other variable is likely to include many ties, as our measures of motivation do (see Hays, 1963, p. 655).

Results

Table 2 shows the relationship of the motivational measures to report card grades and the standardized achievement tests.

It is clear from the results that the fantasy measures of achievement motivation are better predictors of performance than the behavioral measures for both the lower and upper grade children.

Table 2

Relationships (gamma) of cross-wave motivational measures to report card grades and standardized tests

	Lower Grade				Upper Grade			
	Report Card Grades	(n)	Achievement Test Scores	(n)	Report Card Grades	(n)	Achievement Test Scores	(n)
autonomous choices	-.04	(41)	.05	(44)	-.17	(49)	-.03	(52)
social comparison choices	.02	(67)	.08	(73)	.16	(68)	.12	(72)
autonomous imagery	.37**	(61)	.12	(65)	.23*	(68)	.19*	(72)
social comparison imagery	.16	(61)	.06	(65)	.27***	(68)	.29***	(72)

* $p < .10$

** $p < .05$

*** $p < .01$

The only significant relationship between motivation and performance for the lower graders is between autonomous achievement imagery and report card grades. For the upper graders there is a trend for a correlation between autonomous achievement imagery and both report card grades and achievement test scores but neither of these relationships is significant. There is, however, a highly significant correlation between social comparison achievement imagery and both report card grades and achievement test scores.

Discussion

The most noteworthy finding in these data is of course the differential effectiveness of social comparison and autonomous achievement motivation as predictors of scholastic performance. Autonomous achievement imagery is a strong predictor of report card grades for the second graders whereas there is only a nonsignificant trend for a positive relationship between social comparison imagery and report card grades. This is consistent with Veroff's developmental theory which would suggest that social comparison is not yet a strong basis for achievement standards for children in the early elementary school years.

On the other hand, both autonomous and social comparison achievement imagery are related to academic achievement for the fifth graders, the latter more strongly. This suggests a number of possible explanations in terms of Veroff's model, depending on which developmental stage it is assumed the children are at.

The first explanation assumes that a substantial number of fifth graders are in a stage of transition between autonomous and social comparison standards of achievement while a majority of them have reached the social comparison stage. The second assumes that while the fifth graders are solidly in the stage of social comparison there is and will continue to be some residual orientation to autonomous standards. A third explanation assumes that the fifth graders have already passed through a fairly pure stage of social comparison and now are in the "integrated" stage--a time when they are able to use either autonomous or social comparison standards depending on their appropriateness to the situation; it would further assume that the school situation is one in which social comparison standards are most appropriate.

While there is no way to determine the relative merits of these explanations, the pattern of results is consistent with Veroff's theory in all three cases. Each of the three explanations does have implications for what the pattern of results would look like in older children. If the children are already in the "integrated" stage, we would expect no change in the pattern of results unless the nature of the school situation were altered to favor an autonomously based achievement motive (e.g., a more individualized program). If the pupils are solidly in the social comparison stage, we would expect a gradual increase in the importance of autonomous standards as the stage of "integration" is approached. And finally if the children are in a transitional stage between autonomous and social comparison achievement motivation, we would expect an initial decrease in the importance of autonomous standards as more of the children move into the social comparison stage, and a later reinstatement of autonomous standards as "integration" occurs. The problem of associating specific ages with developmental stages is of course insoluble. A longitudinal study looking at a group of children each year from the beginning of elementary school through the beginning of senior high school or a developmental study in which all the grades were included would, however, help to clarify the nature of progression from the autonomous to the social comparison and finally to the integrated stage.

It is also worth noting that the projective measures of motivation are more strongly related to achievement performance than are the behavioral measures. The initial rationale for employing projective techniques in assessing motivation was that in the projective situation the subject's defenses are less vigilant and he is more likely to disclose his own "wishes, fears, and traces of past experience" (Murray, 1938, pp. 530-531). Attempts to develop an objective measure of achievement motivation in adults have never produced an instrument with the predictive potency of the original projective measure. Veroff's development of risk-taking measures of achievement motivation in children was partly motivated by the fact that the projective measure is difficult to administer to very young children. Although the risk-taking measures have amply demonstrated the developmental transition from autonomous to social comparison bases, no evidence has ever demonstrated validity of these measures as indices of motive strength. The problem may be that the

objective measure is more highly influenced by the demand characteristics of the testing situation than is the projective measure. In the risk-taking measure the children may be choosing the alternative which they feel will please the experimenter. Being a more subtle and less conscious measure, the projective avoids this problem and may therefore be a better index of underlying motive strength.

The results of one study should certainly not lead to an abandonment of the risk-taking measures. There is a longer history of their successful use with children than for the projective, and they are easier to administer, especially with very young children. This study does suggest however that future research should concentrate on the predictive validity of both of these motivational measures just as has been so extensively done for the projective measure for adults.

Role Conflict in the Relationship of Achievement Motivation to Scholastic Performance

Introduction

We pointed out initially that one of the puzzles in the literature on the relationship between achievement motivation and performance is the lack of consistent positive findings. Atkinson (1974) has summarized the status of this relationship as a "now you see it, now you don't" phenomenon (pp. 200-201). This pattern has been especially evident in the research on the motivation and performance of elementary school pupils.

What has been perplexing about this inconsistency is that researchers have confidently expected to find consistent, positive motivation-performance correlations on the dual assumption that an individual's motive to achieve is a unitary characteristic that is engaged whenever he or she is challenged to perform to some criterion of excellence, whether the challenge involves a brief task in a laboratory, the scholastic curriculum, athletics, or whatever. But a number of researchers have questioned the unitary nature of the achievement motive and to suspect that its evocation depends on several properties of the stimulus situation in addition to its achievement challenge. (See Crandall, et al., 1960; Maehr, 1974; Veroff, McClelland, & Ruhland, in press.)

In this section we address ourselves both to a useful developmental distinction in the nature of the achievement motive and to a social psychological property of the situation that may condition its evocativeness. On the one hand, we continue to examine the relationship between achievement motivation and scholastic achievement as we did in the previous section, distinguishing between motives with an autonomous basis that invokes comparison with one's own previous performance in order to assess the degree of achievement, and motives with a social comparison basis that invokes the performance of relevant others as a standard. On the other hand, we take into account the level of role conflict that an individual experiences in a situation as a determinant of the efficiency with which motive power enhances performance.

By "role conflict" we mean the degree to which the various social pressures exerted upon the individual to believe, to experience, and to behave in certain ways appropriate to his/her social relationships are incompatible. Specifically here, we concern ourselves with whether the demands of the student role, as the child perceives it, are compatible with the pressures he/she feels as a peer and friend to his/her classmates. There are at least two ways in which a child's classmates may inject role conflict into the scholastic situation and thereby affect the realization of the child's achievement motive in his/her scholastic performance. One way is to counter the teacher's view of the student role with an opposing demand by friends that negatively sanctions scholastic effort and achievement. The other is to reject the individual as a friend/peer, which might generate two sorts of conflict. Rejection can be anxiety-provoking and thus interfere with enactment of the scholastic demands of the student role. In addition, since social skills are often perceived to be part of the requirements of the student role, unpopularity may be seen as a failure in the student role that could effect other parts of role performance as well.

The potency of role conflict to condition scholastic achievement has been amply documented among high school students (c.f., Coleman, 1961; Gordon, 1957) with research that shows that in many schools peer norms are counter to scholastic achievement and that they do reduce students' efforts and levels of performance. One may expect similar findings among elementary school pupils even though the athletic and social con-

cerns important to high school students are not so well institutionalized in the primary grades. However, generalizations from high school to elementary school students may not be valid: identification with peers seems to be less strong among younger children who seem relatively more attached to the values of parents and teachers (Long, Henderson, & Ziller, 1967); and the elementary student sub-culture may not be as incompatible with scholastic norms as the high school student sub-culture seems to be (Dunn, 1966). On the effect of social rejection on scholastic performance, Lippitt and Gold (1959) found that popularity and acceptance by classmates was positively associated with achievement, with intellectual capacity held constant, and the causality here seemed to flow from rejection to poorer performance rather than vice versa.

With these considerations in mind, we formulated the following hypotheses as guides for analyzing the data on the effect of role conflict in the relationship between achievement motivation and scholastic performance:

1) The more conflict an individual perceives between the demands of the student role emanating from teachers and from friends, the less positive the relationship will be between his/her achievement motivation and scholastic performance;
2) The more the individual perceives him-/herself rejected by his/her classmates, the less positive the relationship will be between his/her achievement motivation and scholastic performance;
3) The effects proposed in the first two hypotheses will be stronger when second graders' autonomously based achievement motivation is involved rather than their social comparison-based motivation; and when fifth graders' social comparison-based motivation is involved.

Instruments

The measures of achievement motivation used here were the ones derived from the story-telling procedure described above. Scholastic performance was measured as described in the previous section. Required at this point is a description of measures of role conflict that were created for this study.

One of our tasks on this project was to assess our subject's perceptions of the various roles they played, particularly as they affected their role as students. In order to obtain students' descriptions of the student role, we asked them to tell us what they thought their teachers liked or did not like them to do. Pilot work with a large battery of items descriptive of students' behavior led to the selection of 19 items (see Figure 11) that describe students both positively and negatively. Each of these was typed on 3 x 5 index card.

Is quiet while the teacher is talking.
Bothers the teacher while she is busy.

Gets to school on time.
Waits a turn in line.
Uses bad words around school.

Has a lot of friends.
Hits the other children.
Laughs when someone gives a wrong answer.

Has good ideas about how to do things.
Acts silly.

Tries hard.
Cheats on a test.
Is lazy when doing schoolwork.

Is a good reader.
Sings very well.
Does well in gym work.
Gets a lot of the answers wrong on paperwork.
Is not good at arithmetic.
Does not finish the schoolwork.

Figure 11. Behavior descriptions used to assess student role perceptions.

During the first individual testing session at Time 3, a posterboard was set up on a table before the child. In horizontal array at about eye level were five round faces, each face with two straight lines to depict eyes. The mouths on the faces varied to suggest different emotions: from left to right was a mouth-line curved symmetrically and radically downward; a line curved moderately downward; a straight line; a line curved moderately upward; and a line curved radically upward. Under each "face" was an inscription to reinforce the emotion depicted: "very unhappy," "a little unhappy," "does not care," "a little happy," and "very happy." The child was told to pretend, in the administration to describe the teacher's view of the student role, that the faces were those of a teacher, and a sign, "A Teacher", was at that point attached to the posterboard above the faces. The tester told the child that some things that children do "make a teacher 'very unhappy' or 'a little

unhappy'" and so on, reading the inscriptions beneath the faces and pointing to each one. ("Does not care" was also described as a teacher who "is just looking" in order to provide the child with the further opportunity to reject a behavior item as relevant to the teacher's view of the student role.)

The game was then explained to the child as one in which he or she guessed how a teacher would feel about some things that boys and girls do in school. To insure that the child understood the distinctions among the five reactions depicted by the faces, he/she was then asked a series of open-ended questions about the kinds of things a child might do in school to make a teacher very happy, a little happy, etc. In all but a few cases it was apparent that children understood immediately the nature of the game; in instances when the child's responses were inappropriate, e.g., having nothing to do with children's behavior, the instructions were repeated and explained some more before proceeding. Then the tester moved behind the board, out of the child's sight.

At this point the tester began to read the 19 items of behavior to the child, handing each item card around the board to the child after having read it and instructing the child to put the card through the slot in the posterboard underneath that face that he/she guessed most looked like how the teacher would feel if a child behaved that way. The tester recorded the child's responses from the back of the board.

At the second individual testing session at Time 3, the procedure was repeated, except that we asked for descriptions of how "your friend" would feel instead of how "a teacher" would feel about the behaviors. Two different orders of presenting the 19 behavior items were used for "a teacher" and "your friend," and these two were alternated randomly among the pupils and the task. Item order turned out to make no difference in distributions of responses or in tests of selected relationships and so was ignored in later analyses.

All of the children seemed to understand the procedure and to respond meaningfully to the instructions. No one's data had to be discarded in toto and only five descriptions of the teacher's view and 11 of the friend's scattered among several subjects became missing data because of recording failures. Appropriately positive or negative

correlations between responses to positively and negatively phrased behaviors also indicated that the method was effective in getting children's descriptions of their roles.

Table 3

Rank Orders by Proportion of Teacher/Friend "Very Happy" or "Very Unhappy"

Items	Teacher		Friend	
	rank very "happy"/"unhappy"	percent "happy"/"unhappy"	rank very "happy"/"unhappy"	percent "happy"/"unhappy"
uses bad words around school	1	83	2	63
quiet while teacher is talking	2	81	3	63
is a good reader	3	79	1	73
cheats on a test	4	74	4.5	57
has good ideas	5	69	6.5	52
tries hard	6	63	8	51
sings very well	7	61	13	43
laughs at the wrong answers	8	60	14	40
hits other children	9	57	11.5	44
does well in gym	10	55	6.5	52
waits a turn in line	11.5	54	4.5	57
gets lots of answers wrong	11.5	54	11.5	44
lazy at doing school work	13	52	15	36
doesn't finish school work	14	48	18	31
bothers busy teacher	15	46	17	34
has a lot of friends	16	42	9.5	49
gets to school on time	17.5	37	9.5	49
isn't good at arithmetic	17.5	37	19	29
acts silly	19	31	15	36

$rho_{teacher\text{-}friend} = .74, p < .01$

There is a fairly wide range of consensus among pupils about the behaviors their teachers expect of them (see Table 3). For example, 83 percent agree that using bad words around school would make a teacher very unhappy, but only 42 percent agree that having lots of friends would

make a teacher very happy, these two proportions representing the range of the modal responses. There was on the whole less perceived consensus about how friends would feel than how teachers would feel, with eight of the items eliciting 60 percent or greater consensus about teachers' feelings and only three, about friends' feelings.

The children in our study for the most part perceived that teachers and friends would regard the various behaviors with the same relative importance. Using as an index of an item's importance the proportion who guessed that a teacher or a friend would be either "very happy" or "very unhappy" about it (whichever was larger) and comparing the rank orders of items on this index, the rho is .74 ($p < .01$). But the data in Table 4 show that the second grade boys stand out among the age/sex categories of subjects as perceiving the least agreement between teachers and friends.

Table 4

Perceived Congruence (rho) of Student Role as Prescribed by Teachers and Friends

	boys	girls
lower grade	.37	.80
upper grade	.76	.76

With a view to developing an index, or indices, of perceived role conflict based on the congruence of children's descriptions of how their teachers and their friends would feel about the behavior items, we ran a series of factor analyses on the responses to the two parts of the task. We were particularly interested in whether the feelings of teachers and/or friends about achievement behaviors (e.g., "is a good reader") clustered separately from responses concerning items of deportment (e.g., "hits other children") or items of effort (e.g., "tries hard"). We found no such clustering of teachers' or friends' expected reactions. There was minimal clustering of positive and negative behaviors into separate factors, but the differential loadings of the items on the factors were not great when orthogonal rotation was employed. So we decided to use all 19 behavior items in a single index, a strategy that required the

fewest assumptions or manipulations of the raw data; and we simply summed the item-by-item discrepancy score between teachers' and friends' expected feelings to get a total conflict index. Inasmuch as item analysis of the discrepancy scores indicated that each item discrepancy correlates significantly ($p < .05$) with the total index, the decision to include all items seems like a legitimate one.

The distribution of the teacher-friend conflict index is displayed in Figure 12. The range is from 1 to 48 out of a possible 0 to 76; the mean = 15.3 with a standard deviation of 6.56; the median = 1.40; and the mode is 14. A higher score indicates a greater discrepancy or more role conflict.

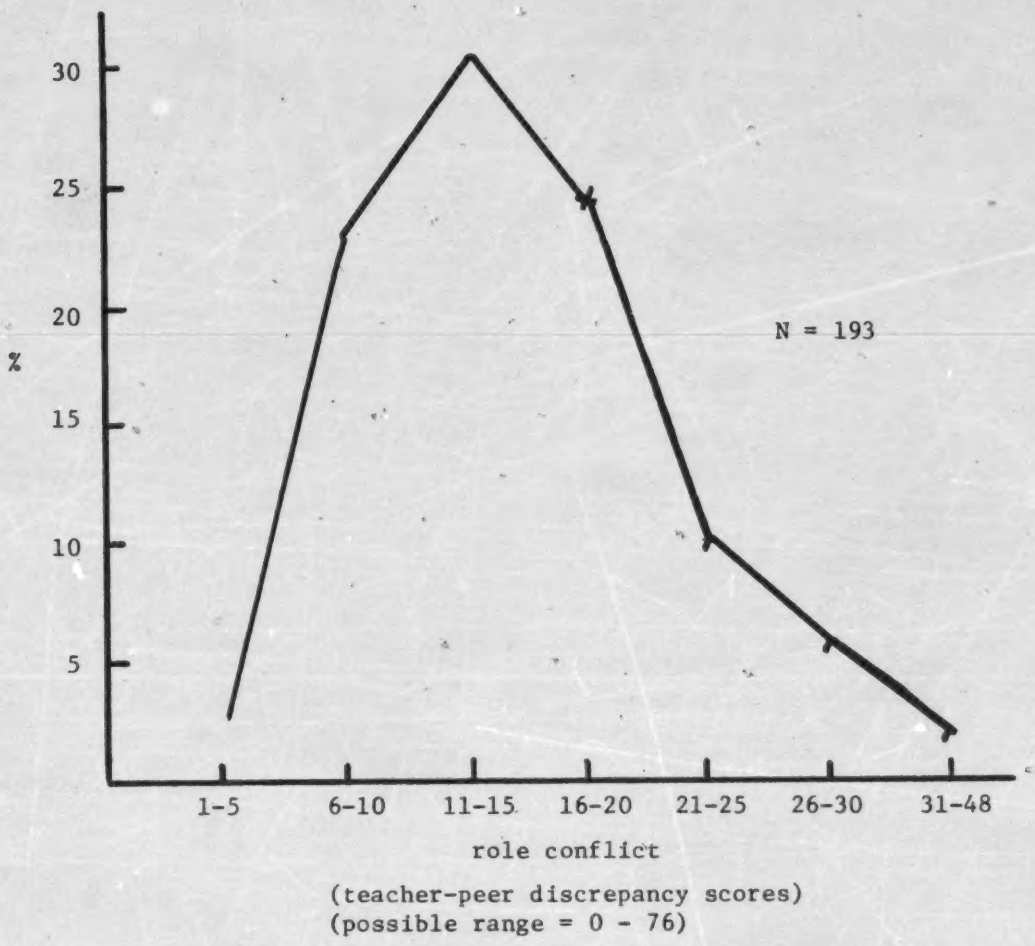

Figure 12. Distribution of teacher-friend conflict.

In order to measure the children's popularity with their classmates, we administered a sociometric test during the first individual session at Time 3. Each child was asked initially to name as many of the children in his/her class that he/she could remember. The tester reminded the child of any classmates that were omitted and corrected his/her false inclusions. Having thus established a classroom list, the tester then asked, "Now, thinking of all the children in your class, who you do most want to be good friends with?" and prompted with, "Anyone else?" for up to three nominations. This procedure was repeated with the questions, "Which ones in your class would you most like to play with during recess?" and "If your teacher wanted some children to work together on something in class, who would you most want to work with?" The measure of a child's popularity was the total number of times he or she was named by classmates in response to the three questions, divided by the number of classmates. The less popular the child was, the greater was the assumed role conflict.

Results

The data indicate that role conflict, manifested either in high perceived teacher-friend disagreement about how children should behave in school or in unpopularity with classmates, does indeed condition the relationship of achievement motivation and scholastic performance among fifth graders, but the results are less clear among second graders. Tables 5 and 6 present these data.

Table 5 documents that the socially-based achievement motivation of fifth graders is positively related to their scholastic performance when the pupils perceive relatively low conflict between their teachers and their friends, and this relationship becomes progressively weaker as perceived conflict becomes stronger. Fifth graders' achievement motivation based on autonomous comparison shows a slightly weaker relationship to performance and then only to report card grades. Among the second graders, only autonomously based achievement motivation is reliably related to scholastic performance; and that relationship is, contrary to our expectations, under conditions of high perceived role conflict.

In Table 6 one can see that fifth graders' social comparison achievement motivation is more strongly and positively related to their scholastic

Table 5

Relationships (gamma) of cross-wave measure of autonomous and social comparison achievement motivation to report card grades and academic achievement tests at three levels of role conflict

		Lower Grade				Upper Grade			
		Report Card Grades		Achievement Test Scores		Report Card Grades		Achievement Test Scores	
	CONFLICT		(n)		(n)		(n)		(n)
Autonomous Achievement Motivation	High	.81***	(14)	.24	(15)	.22	(23)	.28	(24)
	Medium	.31	(25)	.10	(27)	.02	(18)	.16	(21)
	Low	.29	(22)	.12	(23)	.37*	(27)	.13	(27)
Social Comparison Achievement Motivation	High	.24	(14)	.32	(32)	.17	(23)	.21	(24)
	Medium	.18	(25)	.12	(27)	.18	(18)	.26	(21)
	Low	.01	(22)	-.16	(23)	.43**	(27)	.36**	(27)

* $p < .05$

** $p < .01$

*** $p < .001$

Table 6

Relationships (gamma) of cross-wave measure of autonomous and social comparison achievement motivation to report card grades of academic achievement tests at three levels of popularity.

		Lower Grade				Upper Grade			
		Report Card Grades		Achievement Test Scores		Report Card Grades		Achievement Test Scores	
	POPULARITY		(n)		(n)		(n)		(n)
Autonomous Achievement Motivation	High	.40*	(23)	.15	(24)	.06	(21)	-.14	(22)
	Medium	.20	(20)	.12	(22)	.23	(27)	.31*	(29)
	Low	.57**	(16)	.28	(17)	.53**	(18)	.34*	(19)
Social Comparison Achievement Motivation	High	.28	(23)	.15	(24)	.65***	(21)	.38**	(22)
	Medium	.06	(20)	-.13	(22)	.40**	(27)	.29*	(29)
	Low	.00	(16)	.05	(17)	-.19	(18)	.21	(19)

* $p < .05$

** $p < .01$

*** $p < .001$

performance by either measure, the less role conflict they experience. However, these data also indicate that the autonomous achievement motivation of fifth graders is more closely related to scholastic performance under conditions of high role conflict. And, among second graders, only autonomous achievement motivation is related to performance, and then only when measured by report card grades, and most closely under conditions of relative popularity and unpopularity.

Discussion

Some of the results conform quite closely to what theory and previous data led us to expect. First, the social comparison achievement motivation of fifth graders relates more strongly to their scholastic performance than their autonomous achievement motivation does; and second, this is particularly true for those children who experience the least role conflict. Furthermore, the older children's autonomously based achievement motive also related positively to their scholastic performance albeit to a lesser degree, a finding which was anticipated in the previous section of this report. And the social comparison achievement motivation of second graders is not related to their performance at any level of role conflict, as developmental considerations also led us to expect.

What is unexpected in these findings is the way role conflict seems to condition the relationship of autonomously-based achievement motivation to scholastic performance. The data are by no means consistent, but in several instances, autonomous need achievement is more closely related to performance when role conflict is relatively high; the main exception is the relationship to fifth graders' report card grades when teacher-friend conflict is low (the gamma of .37 in Table 5).

The most noteworthy aspect of these unexpected results is seen in Table 6, which shows that among older children especially the social comparison achievement motivation of popular pupils is more closely related to their scholastic performance while the autonomously based achievement motivation of unpopular pupils is more closely related to their performance. This pattern suggests that the potentially debilitating effects of peers' rejection on scholastic performance may be cushioned by a motivational orientation that is based on comparisons with one's own previous performance. Among children who do not have close social ties to their class-

mates, those who strive for excellence in relation to their own past performance are more likely to succeed scholastically than those who are lacking this self-oriented motivation. Perhaps the self-centered children can compensate via scholastic achievement for lack of social achievement.

The data in Table 5 present a more puzzling pattern. Among the second graders, high role conflict sets the condition for achievement motivation, whether autonomous or social comparison, to be more closely related to scholastic performance, albeit at a reliable level of statistical significance in only one emphatic instance. But the relationship of fifth graders' achievement motivation to their performance seems to depend both on its comparison base and the measure of performance, whether report card grades or achievement tests. These data continue to puzzle us; they submit to no straighforward explanation.

Work in Progress

A number of further analyses are planned but have not been completed as yet due to exhaustion of research funds. The investigators are working on these matters when time is available, and further papers will be submitted as they become available. To indicate the direction of this work, we describe briefly in this section the major variables that remain to be analyzed.

Achievement anxieties. An expanded version of the Test Anxiety Scale for Children (Sarason, et al., 1960) was administered at each time period. The original 30-item scale was expanded by 12 items to provide for better specification of certain dimensions found to comprise the factor structure of the scale and to reduce imbalance in wording that might have contributed to response set determination of the total score. Preliminary analyses indicate: good over-time reliability in total achievement anxiety (gamma $\cong$ .40, $p < .001$, from one time period to the next); the expected negative correlations between achievement anxiety and scholastic performance; and, based on path analyses, the circular effects of anxiety on scholastic performance and of scholastic performance on anxiety. Planned analyses include investigation of the effects of role conflict on the relationship between anxiety and scholastic performance.

Self-esteem, esteem for own race, and esteem for own sex. Several efforts were made to test these esteem-related variables indirectly, in ways less susceptible to the biases in conscious self-presentation.

At each group testing session, measures based on the self-social construct test as developed by Ziller and his colleagues were used (Robinson and Shaver, 1973). This test is based on the assumption that in our culture individuals attribute more positive value to physical positions that are top (rather than bottom) and left (rather than right). At different times the children were presented an array of either six vertical or six horizontal circles. They were asked to imagine the circles to be children and to pick one to be themselves by placing their initial in that circle. The higher or the more to the left the circle choice, the higher the self-esteem score.

To test evaluations about one's own race or sex, the self-social constructs test was modified so that it contained two rows of six circles, or two columns of six circles. The subjects were asked to pick one circle in the first row (column) to be a black child and one in the second row (column) to be a white child. Each child also received two sets of arrays that were designated with respect to "a boy" and "a girl". The relative placement of the black and white or boy and girl child on the parallel arrays of circles was used to derive measures of relative esteem to own race versus other race, and own sex versus other sex.

We also attempted to assess self-esteem by coding the content of the stories collected primarily to assess achievement motivation. This projective measure of self-esteem was assumed to be an even less conscious measure than that provided by the self-social constructs test.

Three indicators of self-esteem were used:

1) Description of the protagonist: If the protagonist in a story was described positively as being ascendant (e.g., as the "boss" or "queen" or "leader") or as generally skillful, then each story with such a description merited a unit of positive self-esteem. Similarly, if the protagonist was described as "descendant" or inept, then each such story was scored negatively.

2) Effectiveness: If the protagonist had some aim or goal, tried to achieve it, was successful, then a positive score was given

for that story; if the protagonist failed, then a negative score was given.

3) Goal attainment: If the protagonist achieves some stated goal of his/hers, but it is not clearly by his/her own efforts, a positive score was given the story; similarly, if for some reason the protagonist was denied some stated goal, although it was not due clearly to his own lack of skill or effort, a negative score was given.

The scores of these three indicators were summed algebraically over the three stories, adding positive scores and subtracting negative scores to produce a total score of self-esteem. Cases of no detectable self-esteem indicators at all, positive or negative, were assigned the lowest score of self-esteem on the assumption that no references of these sorts indicated a high level of defensive repression and extremely low self-esteem.

Esteem towards own's one and the other race and sex group was also assessed in a second fashion. Based on pilot work, two sets of photographs of smiling children were obtained. Each set contained pictures of children the same age as our two sets of children, but unknown to them. Within each set were eight pictures of black boys, eight of black girls, eight of white boys, and eight of white girls. Each picture was a circle one inch in diameter. They were arranged in three concentric circles of 4, 12, and 16 pictures on a large board. Beneath each picture was a hole. The tester was positioned behind the board. The child received three pegs that would fit in the holes. It was explained to the child that he or she would play a game with pictures he/she had never seen before. He/she was told to pretend that the children in the pictures went to his/her school and to chose the pictures of three children with whom he/she would like to do certain things. It was explained to him/her that there were no correct or incorrect answers and he/she was free to chose any one of the 32 pictures by placing a peg under his/her picture choice. If the child said that he/she understood, testing began. If he/she did not understand, the experimenter re-explained to him/her. The experimenter began by saying to the subject, "Choose a picture you would like to.... Now chose another you would like to.... Now another one...." Scores were then recorded for the three choices for that statement, the child was instructed to remove the

pegs from the board, and testing continued. The same or different pictures could be chosen for the next test item. Then six school-related items and six outside of school items were read to the child. The total number of children of own versus other sex or race who were so chosen was then taken as a measure of preference for one's own race or sex.

Preliminary analyses have been discouraging; they indicated only moderate over-time stability in the projective measure of self-esteem and little association among the several measures of self-esteem obtained at any one time of testing. Similar problems were found for the several measures of esteem toward one's own race. Further work is planned to determine whether any of these measures show sufficient evidence of over-time or inter-method reliability to warrant further attention. The sex-group related esteem measures also remain to be investigated.

Race and sex role conceptions. In keeping with our primary interest in the student role, we studied race and sex roles only as they impinged on the student role. The same set of 32 pictures which were described above were used, but the pictures were rearranged in another random order and presented at a separate testing session. This time the children were instructed to select the picture of the child who behaved in certain ways in class. The list of 19 behavior items used in assessing both teacher and friend demands regarding the student role were used. For example, while the examiner sat behind the board with the picture, the child was asked to place a peg under the picture of the child who "Is a good reader," "Acts silly," etc. Two race-role related scores were derived: one indicated the total number of positive behaviors children assigned to members of their own and to the other race group; the other, the total number of negative behaviors attributed to their own and to the other race group. Comparable measures were derived for own versus other sex group. Preliminary analysis has only just begun on these measures. Our major goal in this area is to consider whether sex or race-linked distributions condition the relationship between achievement motivation and scholastic performance.

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